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MINORCA COCKEREL.

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Winner of Challenge Cup London Minorea Club, 1898, and Poultry Club Silver Medal at Lambeth; also Special and First and Certificate for Best Bird in Show at Stratford; and Challenge Cup, two Poultry Club Medals, and Silver Medal of London Minorea Club at Canning Town.

(The above illustration originally appeared on the front page of "Poultry,"
March 24th, 1899.)

### THE PRACTICAL

# MANAGEMENT OF POULTRY

## WITH A VIEW TO PROFIT:

A GUIDE TO SUCCESSFUL POULTRY KEEPING ON A LARGE OR SMALL SCALE.

BY

# RICHARD W. WEBSTER.

PROFUSELY ILLUSTRATED.

PRICE 2s. 6d. NETT.

### LONDON:

SIMPKIN, MARSHALL, HAMILTON, KENT & CO.,

ALSO OF THE AUTHOR,

HILLSIDE, LITTLEWICK, MAIDENHEAD, BERKS. 1899.

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# E 6611

BROMLEY, KENT:
E. CLARKE & SON,
PRINTING WORKS, 53 HIGH STREET,
AND AT ST. MARY CRAY.

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## OPINIONS OF THE PRESS.

The Practical Management of Poultry with a View to Profit is a very serviceable and timely work by Mr. Richard W. Webster. published at 2s. 6d. nett by the author, and Messrs. Simpkin, Marshall & Co., London. The author has gained his knowledge in that best of all ways, personal experience, extending over some twenty years, and is consequently enabled to treat his subject in a practical manner. He points out the conditions under which poultry-keeping is profitable, and then proceeds to discuss the question of housing, feeding, and general management, selection of a breed, management of the sitting hen, feeding and management of young chickens, artificial incubation, the way to obtain eggs in winter, poultry-keeping by farmers (a section we specially recommend to the attention of our readers), fancy poultry farming, the economical feeding of poultry, hints on the preparation of birds for the show pen, rearing and fattening of table fowls; and concludes with a very serviceable chapter on the simple treatment of disease. The comprehensiveness of the work as a guide to poultry-keeping on a large or small scale will be gathered from the foregoing list of subjects, which are all dealt with in a clear though critical manner. The work is freely illustrated, and we can well recommend it to poultry-keepers generally.—Rural World.

The Practical Management of Poultry with a View to Profit. (R. W. Webster.)—The name of Mr. R. W. Webster, of Maidenhead, has been so long and honourably connected with the Fancy, that the writer confesses to having looked out with interest for the book which it was an open secret that Mr. Webster had in process of incubation. This literary chick, now out, bears the title of "The Practical Management of Poultry with a view to Profit," and purports to be a guide to successful poultry-keeping on a large or small scale. It is above all, what it sets out to be,

practical, and as such embodies much of the experience of its author, gained during his twenty years' following of what was at first a hobby, but which has since developed into a large and successful business venture. The general management of fowls, selection of a breed, incubation—natural and artificial, economical feeding of poultry, simple treatment of disease, etc., are all points upon which Mr. Webster speaks with the confidence bred of difficulties overcome personally. Of special interest at this time, however, when apparently the columns of the F.W. are besieged with eager applicants anxious to risk their all in the very doubtful pursuit of poultry-farming, are the timely warnings addressed to these enthusiasts by Mr. Webster in his chapters on the subject, and none too heavily does he drop on the writers whose arguments have led to people believing that in the production of eggs and chickens for the market lies an El Dorado to hand for anyone, however ignorant he may be of the simplest rudiments of poultry culture . . . On fancy poultry-farming Mr. Webster gives equally sound advice, and, indeed, the whole book can safely be recommended for putting both sides of the question fairly and squarely before the novice in poultry-keeping. The work is illustrated throughout with engravings of the different breeds of poultry, houses, runs, and appliances, and neatly bound in cloth, should secure a ready sale at 2s. 9d. post free, either from the office of this paper or its author. - Feathered World.

The Management of Poultry with a View to Profit. By R. W. Webster.—This contains the carefully narrated experience of one thoroughly conversant with poultry, and we can safely state he has succeeded in what he has attempted—namely, to impart information acquired during twenty years' hard matter-of-fact experience, that may be useful to all classes of poultry-fanciers. Speaking of the conditions under which poultry may be profitably kept, Mr. Webster gives great encouragement to the small householder, and expresses a hope that the number of such poultrykeepers will be rapidly augmented in this country. He also shows with what satisfactory results fowls may be kept by farmers, cottagers, and amateurs; and what we are particularly pleased to observe, impresses clearly the fact that if poultry is to be a profitable investment, the most important matter for consideration is the cost of food. . . . On the subject of feeding Mr. Webster is most lucid, and his remarks are of the utmost value, as are also the chapters on "Selection of a Breed," "The Management of the Sitting Hen," "Feeding and Management of Young Chickens," and "Artificial Incubation." The advice to farmers on the subject of poultry keeping is indeed excellent, and Mr. Webster is of opinion that egg production is much more profitable for a farmer than chicken rearing, although to a certain extent the two must be combined. The experiences of some large agriculturists are given, and prove invaluable. We agree entirely with the author in his statements on the truth about poultry farming. Fancy poultry farming is also well handled. The work also includes hints on the preparation of birds for the show pen, the rearing and fattening of table fowls, and concludes with a chapter on the simple treatment of diseases. Altogether, it is a volume that should be thoroughly perused by all interested in poultry.—Poultry

We have received a copy of another new poultry book entitled, "The Practical Management of Poultry with a view to profit," the author being the well-known Mr. R. W. Webster, of Maidenhead. We have found considerable pleasnre and interest in reading this work. Coming from such a successful and practical man, it is no wonder that the title is well borne out from beginning to end. Its teaching is sound throughout. The chapters include "The Conditions under which Poultry-keeping is Profitable," "Selection of a Breed," "Artificial Incubation," "Poultry-keeping by Farmers," "Fancy Poultry Farming," "The Truth about Poultry Farming," "The Economical Feeding of Poultry," &c., &c.—Fowls.

The Management of Poultry with a View to Profit.—Messrs. Simpkin, Marshall & Co., London, have published a handbook of "The Practical Management of Poultry with a View to Profit," written by Mr. Richard W. Webster, and ornamented by many well-drawn pictures of cocks and hens. It gives a business-like and instructive account of the best methods of poultry keeping, and will prove useful both for study and for reference to all sorts of men who raise fowls.—Scotsman.

Management of Poultry.—This volume by Mr. R. W. Webster, "The Management of Poultry for Profit," will be found to be an extremely useful handbook to all classes of fanciers. The author evidently has an intimate and extensive knowledge of the best methods, which he has managed to incorporate in his book in a very readable style. The book, which is freely illustrated, is published at half-a-crown.—Farm, Field, and Fireside.

The Practical Management of Poultry with a View to Profit. A guide to successful poultry keeping on a large or small scale. By Richard W. Webster.—The best indication of the progress of

poultry culture, or the poultry industry generally, is that afforded by the numerous publications and books written for the benefit of those interested. . . . With this preface we would draw readers' attention to the new poultry book, written by a noultry fancier and successful breeder of twenty years' experience, whose name is a sufficient guarantee for the bona fides of such a work as announced in the comprehensive title of "The Practical Management of Poultry with a View to Profit," and we congratulate the author, Mr. Richard W. Webster, on the instructive work he has presented to us. . . The book deals with the management of poultry under almost every condition, from fowls to be profitably kept by small householders to the farmer, or poultry farmer, and, therefore, may be perused with profit by those whose circumstances will only permit of keeping half-a-dozen to the agriculturist with 1000 head of poultry. The poultry fancier is not forgotten, and many well-filled pages are devoted to "Fancy Poultry Farming," and hints on preparation of birds for the show pen. The importance of "Economy" being studied in all branches of the poultry industry is prominently pointed out throughout the work, and may be said to be the principal tenet of Mr. Webster's work, and we thoroughly endorse his well-expressed sentiments in this respect. Housing, hatching, feeding, artificial incubation, eggs in winter, the production of poultry and eggs for market, economic feeding, rearing, and fattening, all find a place, and are so excellently treated that he who runs may read and receive sound instruction. On the "Simple Treatment of Disease," a subject on which much ignorance is displayed, Mr. Webster's advice is invaluable, and makes the hook a useful work of reference. . . Some forty illustrations by Messrs. J. W. Ludlow and A. F. Lydon enhance the value of the work, which is indexed most fully for ready reference, and with cloth covers, at the low price of half-a-crown, should have a ready sale, and we can with confidence recommend Mr. Webster's work to our readers.—Feathers.

Another reliable and handy volume recently published on the same subject, "The Practical Management of Poultry with a View to Profit," is by Mr. Richard W. Webster, of Maidenhead, and published by Messrs. Simpkin, Marshall & Co. The information here set forth has been gained by hard matter-of-fact experience, and the subject is thoroughly worked out with a view to profit, whether poultry are kept on a large or small scale. The book is well illustrated with some good woodcuts. The volume can be highly recommended to those requiring a guide to poultry-keeping.—Reading Mercury.

## PREFACE.

URING the past twenty years I have had exceptional opportunities of acquiring an intimate and comprehensive knowledge of the best methods of management of poultry, and in the following pages I have endeavoured to impart this information to my readers. Such knowledge as I have has been gained by hard matter-of-fact experience, and therefore I feel justified in claiming for my small work, that the advice it contains is eminently and essentially practical, and, being such, I venture to hope that, as a handbook on the management of poultry, it may prove useful to all classes of poultry fanciers.

Many letters are annually received by me, asking a variety of questions with regard to poultry management. I trust the advice here given may tend to remove some of those difficulties with which such correspondents would seem to be at times perplexed.

Certain fallacious ideas exist in the public mind as to the "possibilities" of poultry farming. I have not hesitated to strike a note of warning by pointing out the risks which attend the keeping of large numbers of fowls in confinement in a limited area, such as the term "poultry farming" usually implies.

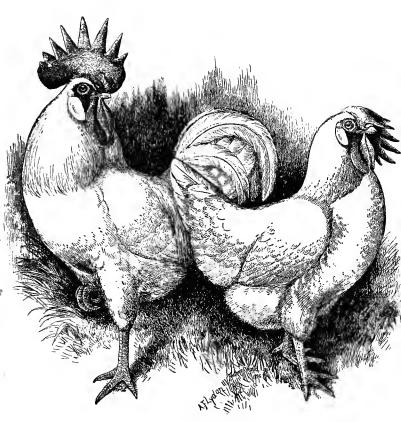
#### PREFACE.

At the risk of being thought egotistical I have made frequent use of the personal pronoun "I," with the idea of being more nearly in touch with my readers.

I acknowledge here my indebtedness to Mrs. Comyns-Lewer, of "The Feathered World," for kind permission to reproduce several illustrations of poultry, which originally appeared in that paper.

R. W. WEBSTER.

HILLSIDE, LITTLEWICK, MAIDENHEAD, 1899.



WHITE LEGHORNS.



## INTRODUCTION.

# The Conditions under which Poultry-keeping is Profitable.

HROUGHOUT this work my object has been to show exactly the conditions under which poultry may be expected to yield an adequate return for labour spent upon them, and to indicate the class of persons who are in a position to keep fowls to the best advantage as having the necessary conditions in their favour.

I maintain that fowls should be kept far more generally by small householders, where the birds will live almost entirely on the waste scraps from the house, and repay the trifling amount of trouble involved in attending to their wants, by supplying their owners with an abundance of new laid eggs; in other words, I am convinced that there should be a far larger number of small poultry keepers in this country than there is at the present time. Fowls ought also to be kept much more extensively by farmers and landowners, who are exceptionally well situated for keeping poultry on a large scale, as they are in a position to provide them with ample range, on which the birds are enabled to find for themselves a large proportion of their food, while such persons are in the best possible position for keeping fowls in large numbers, as they are able to keep them apart in flocks about the fields and meadows, thus reducing the risk of disease to a minimum. I feel assured that the enormous quantity of eggs annually imported into this country can only be reduced in the future—firstly, by greater attention being given to poultry by our agriculturists; and, secondly, by the united efforts in the same direction of many small householders.

Poultry are kept to the greatest advantage, from a profitmaking point of view, when the birds are enabled to find for themselves the greater portion of their food, or where they consume refuse matter, which would otherwise be wasted. For instance, when properly managed, nothing pays a farmer better than his stock of fowls. For nine months of the year they will need little food besides what they pick up round the homestead and stackyard, and by their aid the value of every shed kernel will be recovered and turned to account. In like manner the cottager's fowls will rarely get any other food than house scraps, and what they can find by the roadside. By keeping poultry in this manner, with next to nothing to pay for food, every egg laid will represent so much clear gain, and it becomes an extremely easy matter to make a stock of fowls kept under such circumstances return a handsome profit to their owner.

An authority on the management of poultry likens them to machines which convert waste and worthless matter into good and profitable delicacies. The comparison is an excellent one, and the man who contemplates keeping poultry with a view to profit will do well to have this idea constantly before him. My own experience in the past has gone to prove that it is difficult to make a stock of ordinary laying fowls pay their way, selling the eggs at an average

price of id. each, unless the birds are able to obtain for themselves a large proportion of their food, or—supposing them to be kept in confinement—the owner is in a position to feed them partly on food of a bulky and inexpensive description. It, of course, becomes infinitely more difficult to make a stock of poultry pay when kept in large numbers in confinement, and when such additional expenses as labour, rent, repairs, depreciation in value of stock, interest on capital, &c., have to be charged to them.

It is also generally admitted that the fewer the number of fowls kept the greater will be the rate of profit that can be derived from them. A small number of birds may possibly be kept almost entirely on house scraps and other refuse, and thus cost next to nothing for food, but when the number is considerably increased, while the amount of refuse food at the owner's disposal remains the same, the cost per head at once rises, and the amount of profit obtained from each bird will as a consequence be diminished.

There are other considerations also which tend to make a small number of birds yield more profit per head than a large number. In by far the majority of instances where a small stock of poultry is kept the birds live rent free, and nothing is charged for looking after them, the latter being often "a labour of love." Thus two important items of expense at once disappear. Again, the wants of a few birds can be very easily attended to; there is less risk of an infectious disease breaking our amongst them, and eggs will usually realise a better price than they do when larger quantities have to be disposed of. Mr. Lewis Wright says, in his "Illustrated Book of Poultry," in speaking of the

profits of poultry keeping:—"Where a few fowls are half kept on the kitchen scraps, if these are not charged, and no extra expense is incurred for attendance, the profit is very great, and may exceed even 200 per cent. on the actual outlay."

The foregoing remarks will show with what satisfactory results fowls can be kept by farmers, cottagers, and amateurs, where much of the food may be procured at a trifling cost, and where many of the ordinary items of expenditure are not charged against them. It will also be seen that the small poultry keeper possesses many great advantages over the man who is keeping poultry on a large scale, any one of which may make all the difference between profit and loss at the end of the year. This question, however, I have entered into fully in subsequent chapters of this work.

What I wish to make particularly clear to the minds of my readers is, that in attempting to make a stock of poultry prove a profitable investment, by far the most important matter to be considered is the question of the cost of food.

# HOUSING, FEEDING, & GENERAL MANAGEMENT OF FOWLS.

T is well for every one to have a hobby, and poultry keeping, considered as such, is certainly a most interesting pursuit, apart from the luxury of enjoying a newlylaid egg, and the satisfaction of knowing it to be the genuine article, and not assorted "French or Irish." I maintain that everyone who is a householder and possesses a back garden, however small, should keep fowls, and I will endeavour to show my readers how it can be done. is quite possible to keep half a dozen hens in perfect health, and in full lay, on a smaller piece of ground than would be necessary to grow a bushel of potatoes, value one shilling and sixpence. The birds will consume all refuse scraps from the house, and convert them into one of the greatest of delicacies-a newly-laid egg. This refuse would otherwise be thrown on the dust heap to decompose, and possibly engender disease. Poultry thrive best when fed on a variety of food, and here is variety in plenty.

An objection may be raised by the would-be town poultry keeper, that the crowing of the cock bird would disturb one's neighbours. To meet this objection I may at once say that hens will lay equally well without a male bird being present—a fact that is not generally known—and, therefore, if egg production is made the chief object it will be quite unnecessary to keep one with the hens.

There are two methods of commencing to keep poultry.

One is by purchasing birds, the other by procuring a broody hen and a sitting of eggs to place under her. If the aspiring poultry keeper, however, has no knowledge of the hatching and rearing of chickens, it would rather be advisable for him to buy some young hens on the point of laying, and so begin at once to get a return for his outlay.

In commencing to keep poultry, the first consideration is to provide suitable house accommodation for the birds. Any old shed or out-house can be utilised for the purpose, providing the roof is sound, or an excellent house may be easily and cheaply built with weather-boarding nailed to

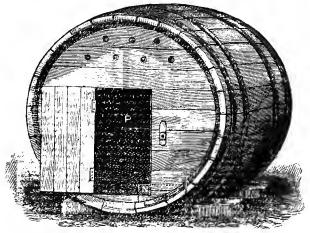
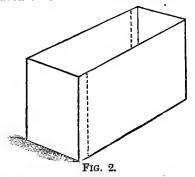


Fig. 1.—Sugar Hogshead, converted into Poultry-house for Bantams, or six Laying Fowls. P. Perch. N. Nest.

stout quartering. In no case need the cost of the house deter a poor man from keeping a few fowls. A most useful shelter for half-a-dozen birds may be made out of a sugar hogshead procurable from any grocer for a few shillings. should be laid on its side, and be prevented from rolling by placing it upon four bricks-two at each end. A door should be fitted at one end, with a hole cut in the bottom for the birds to pass in and out. Two perches must be fixed across the barrel, and a small window may be made at the end opposite the door to admit light. To make the floor level, three or four inches of road sand, dry earth, or peat moss litter should be placed on what is now the bottom of the A few holes must be bored at the back and front, as close to the roof as possible, so that a current of air may pass over the heads of the birds, and thus provide ventila-A piece of stout felt, or some old sacks, should be nailed on the top of the hogshead, and the whole be well tarred to keep out the wet. The initial cost of such a house would not be more than four or five shillings.

Another very cheap but excellent shelter may be made of American bacon boxes. These are boxes or cases in which



bacon is packed abroad for shipment to this country. They are well and strongly made, and may usually be procured

from any provision dealer for one shilling each. To use one of these cases to the best advantage, knock the bottom out and saw down by the side of the scantling at the two opposite corners, so as to halve the box, leaving a side and end attached at each of the two remaining corners (see illustration, fig. 2.) The dotted lines show where the box should be sawn.) Four of these boxes cut up in this manner, fitted and fastened together by plates of wood, make an admirable domicile for a brood of chickens, or for six hens and a cock. For the roof use weather boarding well gastarred, over which Portland cement should be shaken while the tar is wet; this forms, as it dries, a stone-like covering, impervious to rain and unaffected alike by sun or frost. Unless thus treated, weather boarding will not effectually exclude wet.

The floor of a fowl house is best made of concrete, though a plain earth floor beaten down until quite hard will answer very well. It should be covered with dry earth, sand, or moss litter, either of which will render easy an effectual cleansing.

Peat moss litter is really the best to use for the purpose; the floor should be covered with this material to a depth of three or four inches. In cold or wet weather it strikes warm and dry to the feet of the birds, who show their appreciation by scratching, rolling, and dusting themselves in it. By its use also a great saving of labour is effected, for with peat moss covering the floor it will only be necessary to clean the house out at intervals of several weeks; all that is required is to turn it over occasionally. It acts as a deodoriser, and thus keeps the house sweet and clean, and it absorbs all

moisture. Any eggs that may be laid from the perch will be preserved from injury by falling upon it. It also makes an excellent bedding to put in a coop under a hen with chickens. In a word, peat moss litter is a most valuable article in a poultry yard, for the uses to which it can be put are innumerable.

In housing poultry there are several important considerations which should be observed. First, the house should be kept sweet and clean by lime-washing the walls at least once a year. Second, in the absence of moss litter the floor should be raked over daily, and all objectionable matter Third, birds must never be over-crowded, either removed. in house or run. Fourth, the fowl house should be well ventilated, though it must be by no means draughty; to effect this, it is best to cut the air-holes as near the roof as possible, so that a current of air passes over the heads of the birds. Fifth, the perches should be fixed so that they can be easily removed when the house is cleaned out. the heavy breeds of poultry the perches should be at least two inches broad, and placed about a foot from the ground. For the lighter breeds they can be put higher, but in all cases it is a mistake to let fowls roost too high, as they are apt to injure themselves in flying down in a confined space. Many fanciers of the heavier varieties of poultry furnish their birds with straw, sawdust, or peat moss, on which to lie, in preference to allowing perches. This is a good plan, and will, to a great extent, prevent that tendency to crooked breastbones, to which all poultry are liable if the young birds are allowed to roost at too early an age.

A fowl house which is built of wood can be made very

warm by covering the roof and walls outside entirely with felt. The felt must be thick and of good quality, or it will soon fall to pieces. If tarred once every summer it will last for many years, and keep the building almost as warm in winter as if the walls were built of brick.

A round cheese box or an orange case will make an excellent nest; either can be purchased for a few pence. The orange case contains partitions dividing it into three compartments of a size exactly suitable for nests.

## Covered Runs.

In addition to the house a small run under cover should be provided to afford a dry retreat for the birds during cold and damp weather. I do not say that such a run is absolutely necessary, but I am certain that the birds will quickly repay the cost of its erection by the increased supply of eggs that will result in consequence. I am convinced that laying hens should be thoroughly well protected from both wind and rain—the former quite as much as the latter. If birds are allowed to stand about the run, exposed to every wind that blows, the production of eggs becomes extremely improbable, if not almost impossible, under such circumstances. My experience teaches that birds which have access to a dry retreat from wind and rain, will lay many more eggs than the same number of birds not so well protected from the elements, though otherwise fed and managed in exactly the same manner. This is more especially the case during the months of January, February, and March, a time of year when eggs will command a good price for both hatching and market purposes, and when it is of the utmost importance that the poultry fancier should be getting eggs, in order to have early chickens, either for market or the show pen and pullets for winter laying. There is a story told of an old Irish woman who managed to get a supply of eggs during the coldest weather. On being asked the reason of her success she replied, "The secret lies in keeping their feet dry." In other words the old woman in wintry weather gave her fowls access to a barn or large shed, where they scratched and amused themselves all day, and were thus kept dry and warm.

The sides of this covered run should be partly boarded to protect the birds from the cold winds. If three out of the four sides can be boarded up to the roof, leaving a part of the south side open, the run will be made all the warmer.

The floor of this run may consist of loose, dry earth, and any short straw or stable sweepings should be thrown on to it. If some corn is occasionally hidden under the straw, the birds will amuse themselves for hours together searching for it amongst the loose material. To keep fowls busily employed means keeping them warm, for the exercise of scratching will cause the blood to circulate freely, the birds will be kept in the best of health and condition, and the egg basket will be replenished daily.

All fowls should have access to some loose dry earth, in which to roll and free themselves from insect pests, and it is very important that such should be provided. Any fine, dry earth will do, but it will answer the purpose better if it is mixed with ashes which are the residue of a wood fire. A heap of this should be placed in one corner of the covered run, and the fowls will be seen to frequently dust themselves

in it. The dust may be confined by placing a board across one corner of the run.

A house, five feet long by three feet six inches wide, and a covered run ten feet long by three feet six inches wide, will be sufficient accommodation for six or seven hens and a cock. (See fig. 3.)

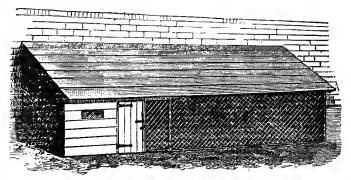


Fig. 3.—A cheaply-made "Lean-to" House and Covered Run, or "Scratching Shed," for half a dozen fowls.

Plenty of space to roam over will be an immense advantage to fowls. On a grass run they will find much animal food in the shape of insects, worms, grubs, &c., besides a plentiful supply of green diet. The importance of a grass run is very great, for the birds, to a large extent, will keep themselves, and save the labour of artificially supplying them with the above mentioned necessaries. The quantity of grass that fowls will consume is quite marvellous, and it is, moreover, absolutely necessary that a certain proportion of their food should consist of green stuff, if they are to be kept in perfect health and condition.

There are few poultry keepers who are in a position to give their birds the benefit of an unlimited range, but are generally obliged to restrict them to a more or less limited run. This run should be on grass where possible, and to prevent the grass from being destroyed it will be well not to overstock it. To fence in the run the ordinary two-inch mesh wire netting should be used, and it may be supported by oak stakes driven into the ground two or three yards apart. The oak stakes can be obtained from any country woodman at a penny each, and are generally about six feet long. If it is necessary to make the fence seven or eight feet high, two stakes may be used as an upright, by binding one on the top of the other with wire or tarred string. All the feather-legged varieties may be easily confined by netting three feet in height, but the lighter breeds, such as Minorcas, Leghorns and Hamburghs, will require a fence at least six feet high to check their rambling tendencies. Some people prefer to cut the flight feathers of one wing. If the last two flight feathers are left at the end of the wing the appearance of the bird will not be injured.

The more liberty a fowl is allowed the better it will thrive, and its productiveness in consequence will be increased. I would not, however, wish my readers to infer from the preceding remarks that fowls cannot be kept to good advantage in a very small space. In such a house, and covered run as I have described, it is quite possible to keep five or six hens and a cock in excellent health and condition. In keeping them in such close quarters, however, it will, of course, be necessary to attend systematically to their wants, and to see that both house and run are kept scrupulously

clean. Everything that is essential to their well-being must be provided, and such necessaries as sharp flint grit to aid digestion, and plenty of green food in the shape of a turf, cabbage, or lettuce must be supplied. To keep poultry in perfect health, grit and green stuff are at all times absolutely indispensable. It must also be remembered that fowls having their liberty find a large amount of animal food in the form of worms, grubs, insects, &c. When kept in confinement, this deficiency must be made good by giving the birds meat scraps from the table, or a handful of Spratt's Crissel (an excellent form of animal food) may be mixed with their soft food. It must also be seen that laying hens are provided with a supply of old mortar rubbish, or pulverised chalk, without which strong egg shells will not be formed.

There are, however, some disadvantages to contend with in keeping fowls in small runs. From want of due exercise the hens are apt to grow fat internally and cease to be productive. To prevent this, care must be taken not to overfeed, and food of too fatty a nature should be avoided. Scraps of fat from the house should not be given to the birds, and amongst grains it would be well to discard maize in favour of wheat or barley.

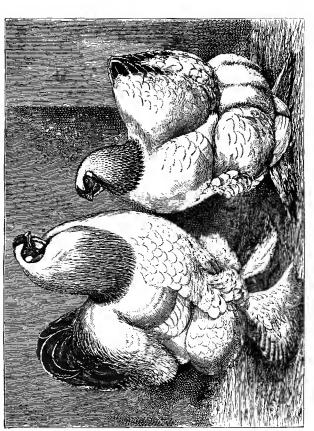
As I have before stated, a supply of green food is absolutely necessary. In the absence of a grass run, a cabbage or a lettuce should be tied up against the side of the run at a convenient height for the birds to peck at.

Fowls kept in close confinement are apt to develop the disgusting practice of feather eating. A deficiency of animal food is supposed to be one reason for this habit breaking out, but I believe that absence of exercise and occupation

is more often the cause. As a preventive, and also as a remedy, I would suggest that the floor of the covered run is covered with loose material, in which a handful of corn may be hidden from time to time. In scratching to find this, the birds will have both exercise and amusement, and their attention will thus be diverted. It is when birds stand about the run in groups doing nothing, that this practice of feather eating is likely to break out.

Against the above trifling disadvantages inseparable from keeping fowls under the conditions I have described the poultry keeper in towns has many advantages over the more favoured country poultry keeper. Mr. W. Cook, a practical authority on the management of poultry, in his work, "The Poultry Breeder and Feeder," in speaking of poultry keeping in towns, says:- "Poultry keepers are apt, likeother people, to form comparisons. It is suggested by many persons residing in towns, that country poultry keepers have so many advantages for successful poultry keeping, as their birds can roam over commons and fields, and often times pick up half their living. This may be so in some cases, but when we consider that in the country the pig pail and other sources absorb a good deal of the scrap refuse, all of which goes to the fowls in towns; how much less a country producer gets for his eggs-often not more than half as much; the limited number of customers to be found in the country; and lastly, the disadvantages of selling oftentimes at a market, it will be seen that the town producer, even if it costs a little more for keep of birds, most certainly has the best of it, over and above the opportunities of getting scraps, &c., from the hotels of which I have spoken. Eggsalways realize a better price in towns, or good districts near a town, and to have a bird on the spot is an immense advantage, and, if all things are fairly considered, the town poultry keeper will find that he has very many advantages. Six fowls penned in a back-yard in a town will often lay more eggs than ten in the country, where they have several acres to roam over during the winter months, as where they have grit, and corn, &c., supplied, they are fed regularly, while the chances are they do not pick up as much as is supposed, while enjoying their liberty on an extensive run."

Fowls are kept in confinement in a very limited space by thousands of mechanics living in our large towns, more particularly in the north and west of England. In the west of England, I have myself seen fowls-mostly of the Minorca breed-kept in remarkably close quarters, yet, apparently in the best possible health, with combs and faces brilliantly red. a conclusive sign of their being in full lay. Not only are adult fowls kept in these small runs, but, I have also seen broods of chickens being reared under similar conditions, and a hardier, healthier lot of young birds could nowhere be found, although, both mother and chickens were confined in a small covered run which was certainly not larger than five feet square. I was, moreover, assured at the time by poultry fanciers living in the same town, that two or three broods of chickens are annually reared in this manner by every mechanic keeping a few fowls. years ago, I stayed for several days at a certain town in the west of England, and, while there, visited the yards of several well-known poultry fanciers living in the neighbourhood. One gentleman informed me that many hundreds

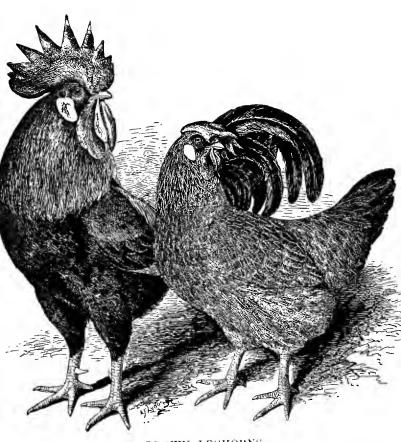


# MR. R. W. WEBSTER'S LIGHT BRAHMAS.

COCK—Cup and 1st Redhill; 1st, Leeds. Hen—Cup at Crystal Palace and Birmingham.

(Drawn from life by Mr. J. W. Ludlow.)





BROWN LEGHORNS.



of fowls were annually reared in and around this town by cottagers, and he further assured me, he believed that in one street alone, no less than 500 fowls—mostly of the Minorca breed—would be found at the back of the houses. This street consists almost entirely of well-built cottages, occupied by thrifty and hard-working men employed in the neighbouring extensive brick and tile fields. My informant added that these men will frequently give £1 for a young cock bird from a neighbour, to introduce fresh blood into their stock. I was taken by him into several of the cottages in this street, the occupants of which seemed delighted to show me their birds, and discuss their individual merits.

It may be asked, "What becomes of all these birds?" They are, in almost every instance, of a pure breed, and in many cases are high class specimens of that breed. In the towns of the west of England which I have visited the fowls kept are almost all Minorcas. The faulty birds are, most likely, consumed by the owner's family; the best specimens are shown at the local poultry show, where, if they are fortunate enough to gain a prize, they are probably sold at a good price. A bird of really fine quality, which is capable of winning a prize at a larger exhibition, will invariably sell It is a bird's ability to win that enhances at a high figure. its value. This will serve as an illustration of what it is possible for working men to do in the way of poultry keeping. although the space at their disposal may be small, and their means and resources limited.

The floor of these houses and runs was composed, for the most part, of house ashes, or ashes collected from the neighbouring brick-kiln furnaces. It was raked over constantly to remove all objectionable matter, and the floor was also frequently renewed by being covered with a layer of fresh ashes.

# Feeding.

One of the chief essentials to successful poultry keeping is to feed the birds properly. The secret of good and judicious feeding lies in guaging their appetites to a nicety -in other words, giving as nearly as possible what is sufficient, but no more. Many persons appear to have no idea of the quantity of food a pen of fowls will consume, and the tendency is invariably to throw down more than the birds will eat. Not only is corn thus wasted, but the birds, by being over-fed at one meal, will have lost appetite for the next. They should have only as much food as they will run after eagerly; if they come for it in a listless manner it may be taken as a sure sign that they were over-fed at their last meal, and they should be stinted accordingly to bring matters right. It is impossible for any fixed scale in point of quantity to be given; some breeds will eat much more than others, and hens will require more or less food according as they may be laying, or otherwise, a laying fowl requiring more food than at other times. An egg contains animal food in its most concentrated form. Its production entails a considerable strain upon the system of the parent bird, and a constant supply of eggs can only be maintained by the bird receiving a regular supply of good and nutritious food.

Regularity in feeding is also of the utmost consequence. The birds must be fed at fixed times, which should be adhered to. Adult fowls will not require to be fed more

than, at the most, three times a day, and two meals will usually be quite sufficient.

It is generally recommended that the breakfast-or first meal in the day-should consist of soft food. The reason for supplying a first food of meal in the morning is that it is quickly digested and taken up by the bird's system without requiring any preliminary grinding in the gizzard. In cold weather it is well to mix the meal in the early morning with hot water. The soft food should consist of two parts of barley meal to one part of middlings (fine toppings.) There is some art in mixing it to the right consistency. Care must be taken that it is not given to the birds in a wet and sloppy state, or it will cling to their beaks, much to their discomfort. It should be well squeezed and kneaded by the hands, and made up into balls of such a consistency that when thrown to the birds it will crumble and break up into pieces. Potato parings and other scraps from the house may be given as a midday meal. It is well to keep a stock-pot in the house for the reception of all such refuse. The potato parings should be boiled, the water drained off, and the parings be mashed and mixed with meal. At night, whole grain should be given, because, as it takes longer to digest and is of a more substantial nature than soft food, it provides a more gradual support to the bird's system during the long time which must elapse before the next meal. Wheat is to be preferred to any other grain. as it is of neither too heating nor of too fat-forming a nature. Wheat is usually rather more expensive than other grains, which has prevented its being more generally given to poultry in the past, but at the present low price it may

be used more extensively. In its natural state wheat contains every element that is required to either build up or sustain a fowl's system. Maize is also used by many poultry keepers on account of its cheapness. The lighter and more active breeds of poultry seem to do well on it, but I would condemn its use to any large extent for the heavy varieties, which are apt to grow very fat internally if much maize is fed to them. Birds of white plumage should not be fed upon maize, as it has a direct effect upon the feathers, to which it imparts a decidedly vellow tint: but this will not, of course, matter when fowls are kept simply for economic purposes. French buckwheat is recommended by many breeders; it is undoubtedly a valuable feeding grain, and poultry are particularly fond of it when they have once become accustomed to it; but, compared with other grains, it is much too expensive for general use. In feeding upon barley, only that which is fairly stout in the grain should be used. The thin foreign barley is practically useless, consisting, as it does for the most part, almost entirely of husk. Some poultry authorities strongly recommend feeding on oats. As oats, however, consist largely of husk, only the heaviest samples should be used, weighing 40lbs. and upwards to the bushel. The variety known as winter oats, is one of the heaviest and best.

The last feed of whole corn at night should be varied from day to day. This is easily managed by keeping a supply of say three different kinds in the corn bin. A little meat, cooked or raw, cut up small, or Spratt's Crissel, may with advantage be given in frosty weather, as it will take the place of worms and insects, the supply of which is, by the

hardness of the ground, cut off, though animal food is then needed more than at other times by the fowls.

Birds kept in confinement require some animal food at all seasons, as they are deprived of that which they would naturally find on an extensive run, but it must be given sparingly.

#### SUMMARY.

Now, to sum up my remarks, I would say that to manage poultry in a proper manner, there are several important considerations which must be observed, if one's efforts are to be attended with any degree of success. I will ask my readers then to bear in mind the following:—

- 1.—Birds should be kept scrupulously clean, for cleanliness is the great preventive of disease.
- 2.—While birds should be warmly housed in winter, they need an abundance of fresh air at night in warm weather. To effect this, a door made of wire netting should be substituted for the ordinary fowl-house door during the warm months of the year. I am convinced that an outbreak of that contagious disease known as roup, more often arises from roosting birds too warmly in hot weather than from any other cause.
- 3.—Fowls should be provided with a shelter to protect them from wind and rain during the day time. My experience is that birds kept in close confinement, but protected from wind and rain, will lay many more eggs than they would do even on a large grass run, but without a dry retreat from the weather.
  - 4.-Feed regularly and give only what is sufficient.
  - 5.—A daily supply of clean water is essential.

- 6.—A supply of sharp grit to aid digestion is absolutely indispensable to keep birds in perfect health. The grit should consist of small stones with sharp edges, smooth stones being quite useless. Suitable grit may usually be found by the side of a road that is mended with gravel, after a heavy shower has washed the roadway.
- 7.—A supply of green food is very necessary at all times when birds have not access to a grass run.
- 8.—Do not roost your birds too high for no advantage is gained by so doing.
- 9.—A bird that is unwell should be taken away from its companions and isolated as soon as detected, to prevent the disease from spreading.
- 10.—Birds should not be kept for egg production after their third season.

#### To cure a hen of broodiness.

To cure broody hens of their broodiness, and bring them on to lay again without much loss of time, they should be shut in a roomy coop, across the bottom of which some round spars have been nailed about two inches apart, and the coop should be placed upon four bricks, one at each corner. The hens will then be practically always at roost, and a current of cool air will be constantly passing under and around them. The coop may stand in the run where the other fowls are. The broody hens should be well fed, and plenty of fresh water be kept by them. It is a great mistake not to feed well, for without an adequate supply of food they lose flesh, and will in consequence be much longer before recommencing to lay. No poultry keeper need be bothered much with broody hens if the above method of treatment is adopted.

#### SELECTION OF A BREED.

HERE give a brief description of the characteristics of a few of the most useful breeds of poultry, to enable the novice to decide for himself which breed is best adapted to suit his particular requirements. They may be classified under three general headings, thus:—

Non-Sitting or Laying Breeds.—Minorcas, Leghorns, Andalusians, Hamburghs, and Anconas.

Table Fowls.—Indian Game, Old English Game, Dorkings, and Houdans.

GENERAL PURPOSE BREEDS.—Plymouth Rocks, Langshans, Orpingtons, Wyandottes, Brahmas, and Dorkings.

#### The Black Minorca.

A Breed for the Farmer and Fancier.

The Minorca is undoubtedly the most popular of the non-sitting varieties of poultry. In laying qualities it is superior to every other breed, and it might appropriately be termed "the everlasting layer." An authority on the breed, says:—"The quality upon which the Minorca has founded its world-wide reputation is that of being a splendid layer." Another expresses the emphatic opinion that "no fowl can equal the Minorca for weight of eggs as compared with the amount of food that is eaten." It should also be added that the Minorca lays the largest egg of any breed. Minorca eggs should be white in

colour. Mr. J. H. Doane, an American authority, writing to "Farm Poultry," December 15th, 1897, says :-- "The principal point in favour of Black Minorcas is that no breed or variety can excel them as egg producers. The Leghorns may lay as many eggs in a year as the Minorcas, but if the size of the egg counts for anything (and it does, all claims to the contrary notwithstanding), the Minorcas stand at the head of the list, no fowl excepted. Large eggs, if clear and attractive, will bring from one to three cents more per dozen than small eggs, or eggs varying in size. The pullets come to laying maturity at an early age. In fact, they mature earlier than any other breed of their size, and with proper care and comfortable quarters they continue laying all through the winter, when prices of eggs are high and the average hen is frozen up. We have bred Black Minorcas for several years, and it has been the rule with us (not the exception) to have a steady supply of eggs all through the winter-even in the severe winters of north-western New Vork."

Minorcas are hardy fowls, moderate feeders, and stand confinement well. For these reasons they are great favourites with working men, by whom they are kept extensively in most of our large towns. As the plumage is black throughout it does not show the dirt when fowls are kept of this breed in smoky, manufacturing districts.

The eggs invariably hatch out remarkably well. The chickens may be easily reared, and the pullets are most precocious, often commencing to lay before attaining the age of six months. As an economic fowl the Minorca is, perhaps, the most profitable breed that can be kept.

When bred from a strain of large birds the Minorca will be found to make a good table fowl, as it matures quickly, and carries a plump breast of delicate white flesh. They are very active birds, and when given their liberty prove themselves to be excellent foragers. The comb of the cock should be single, large, and erect. The comb of the hen should fall over to one side of the face. The comb should be evenly serrated, with five to six wedge-shaped spikes, in both male and female. The face should be red, and entirely free from any trace of white; the lobe quite white, and in texture like a kid glove. The plumage should be glossy black throughout, and the legs and feet also black.

There are also white Minorcas, but they are not as a rule so large as the black variety, nor are they so popular. The plumage, legs and feet, should be white; in other points they should resemble their black confrères.

#### The Andalusian.

The Andalusian has many characteristics in common with the Minorca, indeed, in all but colour of plumage, the two breeds are nearly identical. It will, however, generally be found that Minorcas are rather larger bodied birds, and carry larger combs than Andalusians. Like the Minorca, they can be highly recommended for their laying qualities.

The correct ground colour of the Andalusian should be a light slate blue, with every feather in the hen edged with a darker shade. The cock's back should be almost black, but the breast feathers should be of the same shade and marked in the same way as the hen. Andalusians, unfortunately, do not breed true to colour, quite half of the chickens

coming either black or white, or of a washed out shade of blue, so that fanciers of this breed are at a serious disadvantage in endeavouring to produce specimens of the correct colour.

# Leghorns.

Another most useful non-sitting breed is the Leghorn. Like the Minorca and Andalusian, it is an excellent layer of white eggs.

There are several varieties of the breed. Of these the White Leghorn is the most popular, and it is generally considered to be rather superior to the other varieties in economic qualities, as it is a larger bird and lays a larger sized egg. The Leghorn excels as a layer, but is not a good table fowl, as it is deficient in breast meat. The Brown, Pile, and Duckwing varieties have been produced by crossing the White Leghorn with the different breeds of the Game fowl. There are also Buff coloured and Black Leghorns.

The comb of the cock should be single, large, erect, and evenly serrated, with five to six wedge-shaped spikes. The hen's comb should be similar in conformation to that of the cock, but carried drooping to one side of the head. The face should be red, the lobes a pure white, and with all the varieties the legs should be yellow in colour.

### Indian Game.

The Indian Game is a splendid table fowl, and for this reason it has become very popular in many districts. They are close feathered birds, and carry more breast meat than any other breed. They are invaluable for crossing pur-

poses, as, when mated with any other breed, they impart first-class table qualities and great hardiness to the offspring.

One of the finest crosses that can possibly be made is produced by mating an Indian Game cockerel with some two-year old Minorca hens. By such a cross the excellent laying qualities of the Minorca, and the splendid table properties of the Indian Game, will be combined in the resulting fowl. The Indian Game when kept in a pure state is not a prolific layer.

For those whose sole object is to rear chickens for the market, the best possible cross for the production of table fowls is that made by mating an Indian Game cockerel with some two-year old Dorking hens. The chickens from this cross will be fit to kill at from twelve to fifteen weeks, and will then generally make as much as they would do if kept until they are older.

Mr. W. B. Tegetmeier, Editor of the Poultry Department of "The Field," in writing of the Indian Game, expresses the following opinion:—"Another breed which has come greatly to the front, in consequence of its being largely used for the purpose of improving our farmyard fowls and other breeds as table birds, is the Indian Game. It may be described as a short-legged Malay, very plump and meaty on the breast, with close, hard plumage, and absence of any offal in the shape of comb or superfluous feather, and altogether a most valuable table fowl, wanting, however, the white skin of the Surrey fowl, which is so highly esteemed in the best table poultry. I have advocated for several years the crossing of this breed with the Dorking and the Surrey fowl to produce birds for table purposes."

#### Houdans.

The Houdan is an excellent table fowl. It is a nonsitting breed, and is a prolific layer of large white shelled eggs. It was originally introduced from France, where the breed is much esteemed for its economic qualities. The Houdan, like the other French breeds, possesses a crest which is a disadvantage from a practical point of view. Birds which carry large crests, if allowed out in wet weather, are apt to catch cold, the presence of which, from the large size of the crest, is not easily detected. They should therefore either have their crests cut off (not too close to the head) or be kept under cover in wet weather. Cocks of this breed are extremely virile and active, and are most useful for crossing purposes to improve the laying and table qualities of an existing stock of farmyard fowls.

# Dorkings.

This essentially English breed still maintains its popularity in spite of the importations of many new varieties during recent years. The reputation of the Dorking rests almost entirely on its excellence as a table fowl. It ranks only as a moderate layer of medium sized, creamy coloured eggs. These usually hatch out fairly well, but the chickens are sometimes very delicate, and are reared with difficulty. Where chickens of some of the other breeds of poultry will thrive, those of the Dorking will droop and die. They are best reared on a gravelly or sandy soil, or on a loam with chalk subsoil, where the ground is generally fairly dry.

The Dorking is of large size and massive appearance. The breast should be deep and projecting in front, the body of good length and set upon short stout legs, the latter white in colour. A distinguishing characteristic of the present day Dorking is that it possesses five toes, though we have heard it asserted that the old fashioned Red Dorking of Sussex and Surrey had but four; certainly the additional toe is not of the slightest recommendation to it from an economic point of view, but Dorking breeders have made the possession of this point a sine quânon in the breeding of their birds for so many years that this feature is now looked for as a sign of its purity.

There are four varieties of the Dorking, viz.—The Dark, (or coloured), Silver-Grey, Cuckoo, and White. The first-named is more generally kept, and it is considered to be somewhat hardier than the other kinds.

# Barred Plymouth Rocks.

The Plymouth Rock ranks next in popularity to the Minorca. It is a breed possessing good all round qualities, but it does not rank high as a table fowl. They are extremely hardy under all conditions, bear confinement well, and are capital layers; they also make reliable sitters and good mothers.

Crossed with other breeds they impart hardiness to the offspring, and for this reason Plymouth Rock cockerels are much used by farmers to cross with their farmyard hens, which are generally birds of the Dorking type.

When kept in confinement they should be fed sparingly, as, like all the larger breeds, they have a tendency to become fat internally. The eggs vary in colour, some-

being dark brown, and others of a much paler shade. As a rule, Plymouth Rock eggs prove very fertile.

The Plymouth Rock is what is termed a "made" breed, in the manufacture of which the Black Java was largely used. This is the cause of a per-centage of the pullets coming perfectly black. Now, however, that the Rock has been carefully bred for many years this tendency is less marked than was formerly the case, but still constitutes a serious drawback to the breed, and the novice, will do well to seek the advice of an experienced fancier to enable him to mate his breeding pens so that, if possible, the majority of his young birds may come of the correct shade of colour.

The foregoing remarks apply to the Barred Plymouth Rock. There are also Buff, and White Rocks, the first named being a recent importation into England from the U.S. America, which country also has the honour of having originated the barred variety. The Buff is even more difficult to breed true to colour than the barred Rock, as it is almost impossible to get a bird that is of the buff shade throughout, black appearing in the tail, neck hackle, and flight feather.

Space will only permit me to describe the barred—Cuckoo coloured—variety. The Plymouth Rock is classed amongst the larger breeds of poultry. The cock should weigh from eight to ten pounds, and the hen six to eight pounds. The comb should be single, erect, rather small in size, and evenly serrated. The legs should be yellow. The plumage is what is known as cuckoo coloured, each feather being of a greyish-white ground colour distinctly

barred with bluish-black markings. Every feather should be marked to the quill with alternate bars of light and dark shade.

# Langshans.

The Langshan is an excellent breed to keep for general purposes. It is a good layer of brown shelled eggs of medium size, but does not rank high as a table fowl, as it is a trifle coarse, and the colour of its legs is against it. They are, however, very hardy birds, and will thrive in almost any situation. The hens are quiet and tame, and make splendid mothers.

The plumage of the Langshan should be of a glossy black throughout, and the legs black, and slightly feathered down the shank. In fine specimens, the comb should be single, erect in both sexes, evenly serrated, and rather small in size; face and earlobes should be brilliantly red.

# Orpingtons.

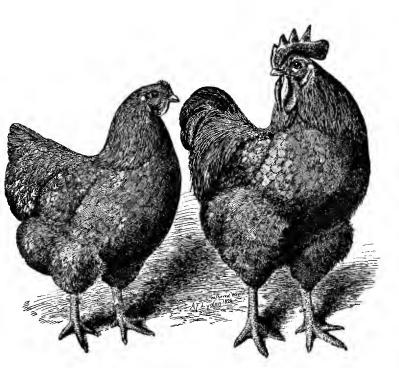
The Black Orpington was introduced to the public in 1886, by the originator, Mr. W. Cook, of St. Mary Cray, Kent. It has been produced mainly by crossing a clean-legged Langshan cock with Black Plymouth Rock hens, and Mr. Cook states that a remote cross with the Minorca was also used. In speaking of the Black Orpington, the originator says:—"They have a red face and ear-lobes, black beak, broad breast, and long breast-bone; flesh white; plumage black throughout, with a splendid green sheen. The tail should be carried well back, not straight up. The legs are black, and free from any tint of yellow, a

little red, however, not being objectionable; four toes on each foot; the feet should be white underneath. The hens should in every way correspond with the male bird, except that the comb is smaller. If it is evenly serrated and straight it may fall a little on one side." Black Orpingtons are good, useful fowls, and lay brown eggs, but their black legs militate against their being considered good table fowls. Mr. Cook's latest introduction is the Buff Orpington; it is a handsome looking bird, of buff-coloured plumage throughout, and as it possesses white legs, it ranks higher as a table fowl than the black variety. The originator also claims that it is superior to the Black Orpington in laying qualities. These two new breeds have quickly grown in popularity, and now take their place amongst our varieties of British poultry, and classes are provided for them at most of the larger poultry shows.

# The Wyandotte.

The Wyandotte, like the Plymouth Rock, is another breed of American origin, whence it was introduced into this country, where it has rapidly gained popularity, by reason of its useful qualities. It is an excellent layer, a good table fowl, and stands confinement well. The hens make excellent sitters and mothers.

There are several varieties of the Wyandotte, the most important being the Silver-laced, Golden-laced, and White; of these the Silver-laced is the most fashionable. In the two laced varieties, every feather should be laced or edged with a black band, the ground colour being white in the Silver, and a golden-red in the Golden variety.



BUFF ORPINGTONS.





BLACK MINORCAS.

In good specimens, the effect produced is very pleasing to the eye. In all the varieties the colour of the legs should be yellow.

The Wyandotte, like the Plymouth Rock, is a made breed, and is said to have been produced, (in the case of the Silver Wyandotte), by crossing the Silver-pencilled Hamburgh with the Dark Brahma, the consequence is that a rather large percentage of the chickens do not come true to colour, which is a disadvantage in breeding them for exhibition.

#### The Brahma.

The Brahma is in many respects the most useful of the Asiatic breeds of poultry. Perhaps its chief merit lies in its great hardiness of constitution; I am convinced that it is, without exception, the hardiest of all breeds of poultry. For this reason it is invaluable for crossing purposes, as, when crossed with other breeds, it imparts this hardiness to the offspring. For instance, the Dorking is generally found to be rather delicate to rear, but when crossed with the Brahma, the hardiness of the latter is imparted to the progeny, and the chickens are reared without difficulty, while the admirable table qualities of the Dorking are to a large extent retained. In a pure state the Brahma cannot be considered a good table fowl.

Mr. Lewis Wright, who successfully bred and exhibited Brahmas for many years, in speaking of their good qualities, in his "Illustrated Book of Poultry," makes the following observations:—"The economic merits of Brahmas are

very great. That we have a high opinion of the breed, and take a very special interest in it, has long been known, and it has often been said that we are unduly partial; but facts will strongly corroborate our view of its good qualities. Imported into England in 1852, it shared with Cochins the 'mania' which then prevailed, and the comparative decline which followed. But while Cochins, so extravagantly lauded at first, are rarely heard of now, except as fancy birds, with Brahmas the case is precisely the opposite. It has taken time for the fowl to make itself known, but its steady growth in popular favour has been the most extraordinary poultry phenomenon of late years. A fowl must have real and great merits thus to make its own way into general popularity; and such the Brahma truly has, possessing as it does a handsome appearance. great size, very good quality of flesh, great fecundity, a strong constitution, and remarkable power of adapting itself to the most varying circumstances."

I have kept both the Light and Dark Brahma for the past twelve years, and have found them to be excellent layers, particularly during the winter; they will continue to lay uninterruptedly through the coldest weather. Concerning this, a Brahma fancier recently remarked to me:—"It is said that Brahmas cannot be compared for laying qualities with Minorcas or Leghorns; but if one reflects that an egg laid in winter, when eggs are dearest, is equal to two produced in the summer, the Brahma cannot fairly be said to suffer in comparison with those breeds, while in some other respects they have an advantage over them." The chickens are generally

extremely hardy, and can be reared anywhere, even on wet clay land, without the slightest difficulty.

It must certainly be admitted that Brahmas possess many advantages. They stand confinement well, and are easily kept within bounds. They will rarely attempt to fly over a very low fence, which is considered to be a great point in their favour, for many fanciers prefer to keep fowls which do not fly. With a few pointed stakes and a roll of wire netting, three feet wide, Brahmas may be folded about a meadow like sheep, or be kept—as they often are—on a closely mown grass lawn, as their feathered feet will prevent their scratching the turf into holes. They lay a good sized dark brown, or chocolate coloured egg, and are excellent sitters and mothers.

As exhibition fowls Brahmas are, in the opinion of many, superior to every other breed. Where the largecombed, nervous, and sensitive breeds, such as Minorcas and Leghorns, are quickly thrown out of condition by showing, the hardiness of the Brahma permits it to be sent to show after show without endangering its health. will account for the fact of a Brahma fowl frequently selling for £20 and £25, and £10 being an ordinary price to be paid for exhibition specimens. An exhibitor can afford to give a high price for a fowl when he has a fair prospect of quickly winning back possibly double the purchase money, not to mention reputation, and I have known this to have been done in many instances with fowls of the Brahma breed. This wonderful strength of constitution, then, gives the Brahma a great advantage over such breeds as Minorcas and Leghorns as an exhibition fowl, and

to a less extent over breeds with medium sized combs, including Langshans, Rocks, Orpingtons, Dorkings, and Cochins. A Brahma can be shown time after time without its going wrong, while the more nervous and sensitive Minorcas and Leghorns would go off in condition after two or three shows perhaps, and would then need to have a rest.

It will be readily understood that the comb is a most sensitive part of a fowl's anatomy, consisting as it does, entirely of nervous tissue, ramified by an infinite number of minute blood vessels. The comb then, is a delicate structure, and is very sensitive to atmospheric influences. A fowl of the large-combed breeds is only in first class condition so long as its comb is brilliantly red, and as condition counts 20 points in 100 in judging poultry, a bird is only fit for exhibition so long as the comb retains this coral-like redness. Now, the pea-comb of the Brahma is small and thick in substance, and presents very little surface to be acted upon by the weather. There is little or no danger in sending a fowl to a show, even during the coldest weather, for no one ever heard of a Brahma's comb being frostbitten. Again, the abundance of fluffy feathering which covers the under parts of their bodies serves its purpose, for it must keep them very warm in wintry weather. These two qualifications together constitute a great advantage, and are of themselves sufficient to justify the opinion being expressed that, as an exhibition fowl, the Brahma is superior to all other breeds.

#### Bantams.

Those who imagine they have not sufficient space for a few large fowls can certainly find room to keep a pen of bantams. These diminutive fowls are extremely interesting and attractive, and if compared with larger birds they will usually be found to yield an equal weight in eggs in proportion to the amount of food they will consume. For exhibition purposes they have several advantages over their larger confrères. The prizes offered in the bantam classes at poultry shows are generally as valuable as those for the large breeds, while the cost of carriage to and from the exhibition is very much less. Both birds and eggs of a prize-winning strain of bantams, will always make as high a price as can be obtained for those of the large breeds. Amongst the various breeds of bantams the following may be mentioned: Black-red, Brown-red, Duckwing, and Pile Game: Black and White Rose-combs: Silver and Golden Sebrights; Partridge, Buff, Black, and White Cochins (Pekins); Light and Dark Brahmas; Japanese, &c.

# THE MANAGEMENT OF THE SITTING HEN.

be hatched almost anywhere, as a visit to a farm homestead will testify. I have known hens sit with excellent results on the top of straw ricks, in the thatch of a barn, and even on the bare boards of a manger; but in hatching valuable eggs, it is always desirable to have the hen confined, and so directly under observation that any little mishap, such as a broken egg, may at once be rectified before serious mischief is done.

A capital nest may be made as follows: -Get a box not smaller than fifteen inches square; knock the bottom out, and place the four sides on the ground; next scoop the earth inside the box into the form of a saucer; and, lastly, line it with a good layer of hay or beaten straw. Over the box may be placed a coop, or some other covering. I have frequently set hens in this manner, under coops out in the open, beneath some secluded shrub, with the front of the coop covered with wire netting, and with a sack in front, so that the hen may not be molested. With such nests I have been very successful. One advantage is that the dampness of the ground rising through the hay or straw of the nest imparts the required amount of moisture to the eggs. very dry weather the ground round the outside of the box may be damped by pouring warm water on it every day, in just sufficient quantity to make the soil moist, but not wet.

In my own poultry yards the broody hens are managed in a very simple manner. They are set in boxes—generally cheese or orange boxes, procured from the grocer—in a nest made of hay or soft straw, with a sack thrown over them. Each hen is taken off her nest regularly every morning and placed under a coop, where she is supplied with food and water.

When possible, do not set hens in the hen-house where other birds are laying, or they will be tempted to use the brood nest, the result being a quarrel and its attendant breakages; or the hen, upon her return from feeding, may take possession of the wrong nest, leaving her own eggs till they become quite spoilt.

It should here be said that when a hen deserts her nest and the eggs appear quite cold, placing them in a basin of warm water, heated to 105° Fah., will usually bring them round again, provided life is not extinct in the embryo.

When a hen "steals" her nest in a safe spot she should be allowed possession of the chosen place, for these stray nests usually yield good results.

CHOOSING THE SITTING HEN.—Of the pure varieties, the Game breed stands first in supplying good sitters, but Dorkings, Cochins, Brahmas, Plymouth Rocks, Wyandottes, Orpingtons, and Langshans are excellent in this respect, as are also crosses from them.

Care should be taken to avoid hens which have blood of a non-sitting variety in them, for these, unless already proved good sitters, can never be depended upon. Moderate sized hens are to be preferred.

It is often necessary to purchase broody hens, or to

remove them from their own nests to others specially prepared for them; in such cases the most rebellious individual may usually be made to set by placing her in a nest containing a few chalk or china eggs, and covering her over. If this is done over-night she will usually settle down upon the eggs, and will be found in the morning quite reconciled to her position. In most cases a hen will take to her new nest very quickly, and without trouble.

Storing Eggs for Hatching.—An excellent plan for storing eggs intended for hatching is to pierce a board with holes, in each of which an egg should be placed with its large end downwards. When kept on their sides for any length of time eggs will require turning every day. This is very probably the reason that stray nests turn out so well, as the hen changes the position of her eggs each time she lays. It may not be generally known that the sitting hen also frequently turns her eggs, and also shifts their places in the nest. To simplify matters, the date when laid should be marked upon each egg, and where many breeds are kept the initial letters of the variety should be added.

Selection of Eggs for Hatching.—When selecting eggs for sitting it will be well always to take those which are well shaped, smooth, and thick in the shell, and to discard all that are particularly small or large. It is said, and possibly with truth, that misshapen eggs are as likely to hatch as others, if the conditions under which the parents live are favourable to fertility; yet I think it is better to reject for hatching purposes unusual looking eggs lest some peculiarity should be perpetuated in the offspring. Dirty or greasy looking eggs should also be rejected, for the pores of their

shells will probably be closed, and so prevent the entrance of air, which is essential to the growth of the chick within.

Eggs for sitting should be as fresh as possible. If set the same day as they are laid they will invariably hatch a day sooner than those laid earlier.

Number of Eggs Allowed.—The number of eggs which should be given to the hen will depend upon her size and the time of the year. In early spring, even the largest hens should have but thirteen eggs, but in summer the number may be increased to fifteen. It is, however, always better to err on the safe side, for even if one too many is given, the hen may let a different egg get chilled each time she turns them, and so the whole sitting may be spoiled.

FEEDING.—The sitting hen should be fed principally on wheat, but occasionally should have a meal of barley. Maize should not be given, as it is of too heating a nature. Always give corn in preference to meal as it takes longer to digest, and consequently, supports the bird's system gradually.

Taking off Nest.—To take the hen from her nest some care is needed. The best way is first to lift her wings and to see that no eggs are under them; then, putting the hands between the bird's thighs and body, and letting the wings rest on one's arms, gently lift her off.

If the hen is taken up by the wings, eggs will often be tucked up under her thighs, and should they fall back into the nest, they may perhaps themselves break, and also injure others.

There are several reasons why hens should be taken off once every day. First, to see that the hen actually feeds,

because some sit so persistently as to starve themselves. Secondly, that the eggs may absorb fresh air, which is necessary for the development of the embryo chick; and thirdly, food must not be given to a hen while on the nest, lest she should take to searching for it among the eggs, besides which, this practice has been known to cramp a bird for life. Sitters should be kept off their eggs a quarter of an hour, but in the summer from twenty minutes to halfan-hour is not too long; while during frosty weather very great care will be needed to prevent the eggs from getting chilled, and no more than ten minutes absence should be allowed, and the nest should then be covered over with a piece of bagging to prevent too rapid a loss of heat. When allowed to take her own course, it will be noticed that the hen leaves her nest about the same time each day, and so it is best to take off confined hens at as nearly as possible the same hour daily, for some hens become restless and fidgety after the regular feeding time has passed. The eggs should be examined each day when the hen is off, so that any broken or cracked ones may be removed.

DUST BATH.—About once a week each hen is put into the dusting shed for a quarter of an hour. The dust bath consists of two or three pounds of flowers of sulphur, mixed with fine dust and road grit. In this the hen will roll and free herself of insect pests, whilst the grit will be picked out to perform the work in the gizzard.

To rid the hen of her parasites whilst sitting is of the utmost importance, or the future brood will swarm with them, in some cases to such an extent as to cause a weakly chick to droop and die. In many instances an infested hen becomes restless, and when greatly tormented she will altogether abandon the nest. For this reason a hen should always be set in a perfectly clean nest, and not in one that has already served for the use of the laying fowls, and which probably contains vermin. When making the nest, a little carbolate of lime powder should be shaken underneath the hay lining, or flowers of sulphur should occasionally be sprinkled over the eggs during incubation. These precautions and a frequent use of the dust bath, will successfully preserve sitting hens from their insect tormentors. All fowls should have access to a dusting shed, which, in a confined run, may consist of a large box with a roof to keep the dust perfectly dry.

DAMPING THE EGGS.—When the nest is raised above the ground the eggs may be dipped for a second or two into a pail of warm water each morning from about the fourth or fifth day before being due to hatch. But eggs only require this damping in exceptionally dry weather, e.g., in March, when the parching east winds blow, or during the intense heat of summer. At such times so much moisture is sometimes evaporated from the egg that the chicks are unable to move enough to break the shell, and the membrane between the shell and the chick is dried to the consistency of parchment.

REMOVAL OF BROKEN EGGS.—Give plenty of room in the nest or the hen may, upon stepping in, break an egg. When this misfortune happens do not neglect it, but at once remove all traces of the accident by washing the remaining eggs in a basin of lukewarm water, and remake the nest clean and dry. Also, if soiled, wash the hen's

breast before allowing her to return, or some eggs may become glued to her feathers and be carried from the nest when she goes to feed. A broken egg, if neglected, is often the cause of a hen destroying the whole sitting.

EGGS CRACKED DURING INCUBATION.—If an egg is slightly cracked during incubation, the injury can be remedied by carefully pasting a piece of gummed or stamppaper over it. I have known many eggs hatch successfully when treated in this manner.

TESTING THE FERTILITY OF EGGS, &c.—During the progress of incubation, unfertile eggs may be detected by means of the following simple plan:—Cut a hole, the shape and size of an egg, in a piece of tin, zinc, or cardboard. Take the eggs into a perfectly dark room, and placing the perforated plate between the eye and a lighted candle, hold an egg to the aperture. Barren eggs will present a clear appearance as if newly laid, whilst those which are developing into chicks will show darker in the centre, and this appearance will gradually spread towards the outside as incubation advances.

In testing eggs that have been set on less than a week it is often difficult to distinguish the fertile from the sterile, especially with brown eggs, so that unless some experience has been gained, it is better to allow another three or four days to elapse before an examination is made. After the eleventh day no difficulty will be found, for the good eggs will then have assumed a perfectly opaque appearance, the line round the air chamber showing very distinctly.

The unfertile eggs in a sitting should be removed. Till after eight days of incubation they will be quite edible and

wholesome in puddings. Eggs that have been under a herlonger than this should be boiled hard, and used as the first food for the chicks.

When a sitting has been purchased all unfertile eggs should be replaced by the vendor, because in the majority of cases the cause of sterility lies in the bad management of his stock. He, therefore, is to a great extent, responsible for failure in the vitality of the eggs he sells.

THE ECONOMY OF TESTING.—In a large concern the economy of testing is very considerable, for besides the saving of the unproductive eggs for culinary purposes, the good eggs may be put together under fewer hens, and those birds from whom all the eggs have been taken will then he set at liberty, and the sooner be brought on to lay. This detail of management is rendered more easy, of course, by setting two or three hens on the same day.

HATCHING.—The first ten days of incubation is by far the most precarious time. After a fortnight the eggs will be much less liable to become chilled. I have frequently known hens to remain off all night on the nineteenth or twentieth day, and yet the eggs have hatched, the bodies of the chicks having retained sufficient heat to support life.

On the twenty-first day the eggs will be found chipped, though, if the hen be a close sitter, this may take place twenty-four hours earlier, and with bantams it usually happens that on the nineteenth day the shells are thus "pipped."

During the process of hatching the hen must not be unnecessarily disturbed, but a visit every two or three hours should be paid to see how matters are progressing. The nest should be cleared of all empty shells, which greatly incommode the chicks, besides which the hen is very apt to pack an egg inside a half shell, thus precluding all chance of its occupant hatching unless speedy assistance is rendered. The chicks should be removed as they hatch and become dry, and be placed in flannel by the fire. Doing this will be the means of saving many a promising young bird from being crushed, and the plan is especially to be recommended if hatching is at all protracted, which is often the case when eggs of various ages compose the sitting, for the staler hatch sometimes many hours after the fresher.

Some eggs will perhaps remain simply "pipped" a considerable time, and the bird may have discontinued its exertions to further extricate itself. These are the chicks that require help, and which, if left unaided, will perish. Assistance is best given as follows:—Carry to the nest a basin of warm water, heated to about 100° Fah., then, using the thumbnail, or some blunt instrument, gently break off the shell round the beak, working towards the air-chamber, or large end of the egg, which can be entirely removed without interfering in any way with the bird. Now peel off the shell round the bird's body, and with a soft piece of flannel foment the parts where the shell and membrane adhere to the flesh. This will have the effect of dissolving the gluelike substance which is causing the mischief, and the chicken will be released. Of course it is necessary that great care be exercised to prevent blood exuding, but I find the operation, when practised as here described, is not a difficult one, and the chicken saved well repays the trouble taken. Should blood flow, it is not always fatal, but the chicken

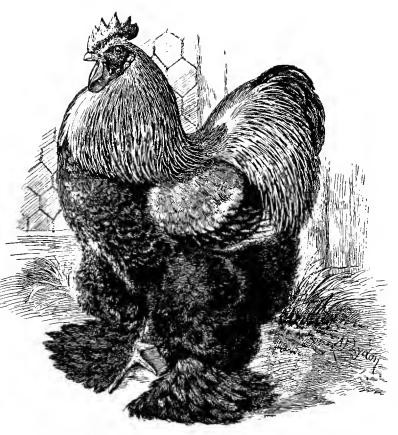
must be at once put under the hen again for a time. The thread-like veins attached to the navel must by no means be separated near their junction with the body, but after detaching them from the membrane lining the egg-shell, they should be left hanging to the chicken, which should at once be placed under the hen. By the time the bird is dry no trace of these blood vessels will be discernible, as their contents will have been drawn into the abdomen.

Occasionally an egg remains which is not even "pipped," the bird inside being either dead, or if alive, probably possessed of insufficient strength to break the shell. In such a case make a small hole at the top of the large end of the egg, and see whether the lining membrane is dark. If so, the egg contains a dead bird, but if the membrane is white the chick is alive. Through the hole into the airchamber the beak can now be seen. Continue to remove the shell, working only towards and round the beak; then desist, and place the egg under the hen. If not hatched out in the course of two or three hours the chick should be assisted in the manner previously described.

If the hen is in any way wild or restless, it will be better to leave her alone, or she may do more mischief than is likely to otherwise arise.

As I have before said, moist weather and humid heat are most favourable to incubation, while a dry, chilly east wind evaporates some of the fluid contained in the egg, and causes the down of the chick to adhere firmly to the skin lining the shell. This prevents successful endeavour on the part of the bird to extricate itself.

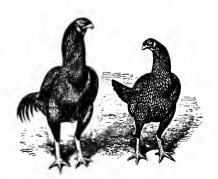
If in dry weather the nest and eggs are treated as described under "Damping," p. 43, the chickens will not require much assistance in hatching, for too great dryness is the principal cause of good eggs failing to hatch at the last moment.



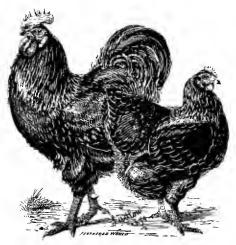
MR. R. W. Webster's Partridge Cochin Cockerel, winner of Cup and First Prize Crystal Palace; First, Birmingham; First, Dairy Show; First, Leeds, &c.

(Drawn from Life by Mr. A. F. Lydon.)

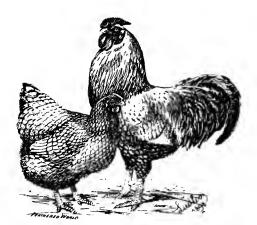




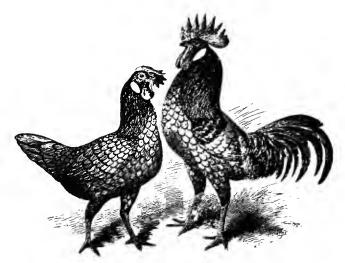
INDIAN GAME.



BLACK ORPINGTONS.



SILVER WYANDOTTES



ANDALUSIANS.

### FEEDING AND MANAGEMENT OF YOUNG CHICKENS

O soon as hatching is completed and the last chick quite dry, the hen must be removed to a coop placed in a warm spot, and the whole brood may now be committed to her care.

It is perhaps unnecessary to say that the practice of administering a peppercorn is great nonsense, whilst the removal of the horny excrescence at the end of the beak is extremely barbarous. It was provided to enable the bird to break the shell, and will continue for some days after hatching to afford a protection to the bill, which is at first soft and delicate.

FEEDING.—The newly-hatched chick does not require food during the first day, for nature has provided sustenance for it in the last portion of the yolk, which, previous to the bird's exit from the shell, is drawn into the abdomen through the navel. So much nourishment is contained in this, that even twenty-four hours' abstinence from food will not hurt the chicken; in fact, any food given during the first twelve hours after hatching will only interfere with the digestion of this natural store of nutriment.

The brood should be first fed upon hard-boiled eggs, chopped fine, and mixed with double the quantity of bread crumbs. To quickly prepare the egg, nail a piece of

perforated zinc, one foot square, on a wooden frame, and press the egg through with a knife. Give occasionally during the first few days a handful of bruised corn, and gradually wean the chicks from the egg altogether; for if the young birds are fed entirely upon soft food, their gizzards will become weak from not having grinding exercise. A little canary seed will be greatly relished during the first ten days, but after that time wheat and buckwheat (cracked), varied with meal, should be made their regular diet. The different kinds of patent meals advertised make splendid food for chickens, particularly Spratt's and "Liverine," to the excellence of both of which I can personally testify.

Barley meal and fine toppings (sharps), in equal proportions, make an excellent food; as do also boiled rice or boiled potato parings mixed stiff with meal. The soft food may consist of barley, oats, buckwheat, and maize, ground together in equal proportions and mixed with one-third of fine toppings. The food should be varied as much as possible, and should not consist, for any length of time, entirely of one kind of meal or grain.

A feed of boiled rice should occasionally be given; it is an excellent thing for young chickens for a change, as it is cooling to the system, and is a great preventive of diarrhea.

In rearing chickens for the show pen, great benefit will be derived from the frequent use of bone-dust, mixed with the soft food in the proportions of one part bone-dust to ten of meal. By bone-dust I mean fresh bones ground into meal; it is a preventive of leg weakness and diarrhæa, and will be found to greatly strengthen the growing birds.

During very cold weather the meal should always be mixed with hot water. At all times, even from the very first, grit and green stuff must be provided, the former in the shape of sharp sand laid in front of the coop, while the latter may consist of grass, cabbage, lettuce, or preferably young onions, cut into very small pieces with a sharp knife on a piece of board. This, of course, is not necessary when there is a good grass run.

During the first fortnight the chicks cannot be fed too often, always provided that what is given is at once eaten. In other words, it is advisable to give as nearly as possible what is sufficient, but no more. For the first ten days the brood should be supplied with food at least every two hours, and in rearing very early chickens, when the nights are long, to ensure success with them, they must be fed late in the evening and early in the morning. The light of a lamp placed in front of the coop, and some corn thrown down, will induce the birds to feed, but before removing the light it is necessary to see that all have returned under the mother. When it is light very early in the morning, a little corn should be thrown down the last thing at night, so that the chicks may have an early breakfast.

After the first fortnight feeding so often is not essential. and at the end of the first month four meals a day will be sufficient. Let the first one in the morning always consist of soft food, and the last at night of grain.

I have generally found the most critical time in the rearing of chickens to be when the crop feathers are growing. During this time the hen often abandons them. meat or a handful of Spratt's granulated "Prairie Meat Crissell" every other day, and oatmeal mixed with barley meal, will help to bring them through this crisis. Plenty of fresh water in a shallow vessel should at all times be near the coop.

Coops.—The ordinary sparred hen coop, with slanting roof of weather boarding, is that generally used. It answers well, and can be purchased for 3s. 6d.; but a handy and ingenious poultry-keeper may save this outlay by turning an old tea chest or American bacon box into a coop. The roof must be well tarred. Many more elaborate coops are made, which in rearing chickens for show purposes may be used with advantage, but in ordinary poultry raising, where strict economy is practised, the common and less expensive coop will answer all requirements.

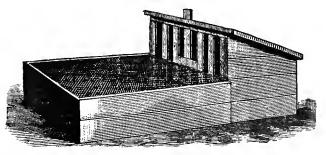


Fig. 4.—Ordinary Sparred Chicken Coop and Run.

Position for Cooping.—In wet or very cold weather it is advisable to coop the hen and chickens under a shed with a dry earth floor. At other times they may be placed out in the open, putting straw or sacking on the ground, if it is wet. A still better plan is to place the coop on a

boarded floor, which should be slightly larger than the bottom of the coop, so that it will stand upon it. The floor must be cleaned daily, and sprinkled with fine dry road sand, or peat moss litter. Dryness under foot is of the utmost importance, for dampness is one of the great causes of cramp. In rearing early broods, unless every precaution is taken, cramp will make its appearance, the coldness of cement, asphalt, bricks, or even of a boarded floor, producing it as quickly as actual damp. This malady is caused by imperfect circulation of the blood in the legs and feet.

DURATION OF COOPING HEN.—In my own poultry yards, the hen is kept confined to the coop the whole time she is with the chickens, which is the plan adopted by game-keepers when rearing young pheasants. Where only a few broods are reared in a season the hen may be allowed more liberty, and after the first fortnight she may be let out in the afternoon of each day, if it is seen that she returns every night to the coop. Generally, when the chickens are six weeks old, the hen will begin to evince less interest in her family, until at length she abandons them altogether. The brood can now continue to be housed under the coop, or taken to a separate run.

To Prevent Crooked Breast Bones.—If allowed to roost at an early age, crooked breast bones will result. To prevent this, perches should not for a time be provided, and the chickens will be content to pass the night on a bed of dry material. My young birds roost in the coops until they are three, and even four months old, at which age they may be placed with the older fowls.

To Construct a Chicken Feeder.—When possible, chickens should possess a separate run, away from the parent birds, but when this cannot be given them, a chicken feeder should be made. It consists merely of four boards, six feet long, and nine inches wide, nailed together at the ends. This will enclose 36 square feet. Over this frame, wire netting is tacked, and holes are cut in the boards large enough to admit only the small members of the fowl community.

SEPARATION OF SEXES.—When the cockerels are from three to four months old, they should be separated from the pullets; otherwise the male birds do not grow so large. A pen of cockerels will agree together until fully grown. It is well to place together all the chickens of about the same size. This will give the weaker broods a fairer chance of thriving.

QUALITY OF FOOD FOR CHICKENS.—It will generally be found most economical in the end to feed young chickens upon good substantial food. They will thus be kept growing, and in good condition, and will be fit at an earlier age for market, the table, or the show-pen.

Refuse food should not be given to young chickens, unless the owner is well assured that such food is in good condition, wholesome, and nutritious. Inexpensive food, on which adult fowls will thrive, is often very unsuitable for rearing young chickens upon.

THE HOUSING OF CHICKENS.—I have previously advised that the young brood should be allowed the use of the coop until between three and four months old, so that the foundation of strong hardy constitutions may be laid. In

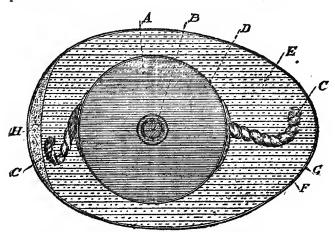
doing this, however, care must be taken that over crowding does not occur, as chickens from other coops are apt to all crowd into one. When this happens, the chickens get very hot during the night and on coming out into the cold of the early morning the system receives a chill, and a cold with slight running at the nostrils follows as a consequence. The same thing happens when chickens crowd into a corner of the hen house, and again if they are roosting in a small house in hot weather without sufficient ventilation. The chickens will be seen to sneeze and a slight running at the nostrils will be noticed; the sneezing is often mistaken for an attack of Gapes.

VERMIN.—At all times chickens should be provided with a dusting shed or box, for if infested with vermin, they can never thrive. The young birds should be examined occasionally, and if lice are found, a little sweet oil smeared under the tail and wings will quickly destroy them.

CLEANLINESS.—Very great importance attaches to cleanli-Filth is the most fertile source of disease among poultry, as it is among human beings.

#### ARTIFICIAL INCUBATION.

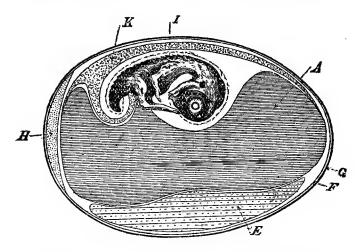
HERE many chickens are reared, the advantages of a good incubator are very great. Even where hens are used extensively in rearing the chickens, the incubator—by putting eggs under hens and in the machine at the same time—will enable the owner to send off every hen with a full brood. In the early months, when broody hens are scarce, one can be independent of them, if provided with a reliable incubator and foster mother.



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FIG. 5.—The structure of a hen's egg at the time of laying:
 A—Yolk. B—Blastoderm. C—Chalaza, or twisted cord of dense albumen. D—Vitelline Membrane. E—White or Albumen. F—Shell Membrane. G—Shell. H—Air Chamber.

I am frequently asked to recommend a good and reliable machine. The only two incubators with which I have had much personal experience, are those of Messrs. Hearson, of Regent Street, London, and Mr. W. Tamlin, of Richmond, Surrey. For many years, two Hearson machines have been worked in my poultry yards, and I cannot speak too highly of them. During the last two seasons, I have also worked



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Fig 6.—The hen's egg at the end of the ninth day of incubation:
A—Yolk Sac. E—White of Egg. F—Shell Membrane.
H—Air Chamber. G—Shell. I—Embryo. K—Allantois.

one of Mr. Tamlin's "Nonpareil" incubators with perfect success. It keeps an even temperature, and is an excellent machine. Each of these machines automatically regulates its temperature, and both of them are on the hot water principle, that is to say, the drawer containing the eggs is placed beneath a tank of hot water, which is kept warm by the flue running through it from the lamp. The regulator is operated by an expanding capsule inside the drawer, acting on a lever, which raises or depresses the valve over the chimney. The effect of the automatic regulator is apparent immediately over the chimney of the lamp, where, by means of a valve, it diverts the heat altogether, or allows more heat to pass along the flue and warm the water according to the temperature of the drawer. courtesy of Mr. Hearson, I am enabled to give a sectional drawing of the "Champion" Incubator, showing the principle of construction and internal arrangements of this famous machine. There are other excellent machines in the market, amongst which may be mentioned that manufactured by Mr. W. W. Greenwood, and known as the "Bedford" Incubator. This machine is also constructed on the hot water system.

There are incubators which are constructed on what is termed the "hot air" principle, which does away with the hot water tank; I believe, however, that the principle of the hot water machine is far superior to the other, and for the following reason, viz.: if the lamp goes out during the night, the reserve of heat in the water will keep the eggs warm for several hours, whereas in the case of the hot air incubator, it is evident that the loss of heat must be very rapid. In making this comparison, I am not speaking altogether without experience of the hot air machines.

After it is once started, a good incubator is very easily managed. It is only necessary to fill and trim the lamp

twice a day, and turn the eggs night and morning. Every machine is sold with a book containing detailed instructions as to the working of it; I have, therefore, deemed it necessary to give here only a few general hints, which are the outcome of my own experience in the practice of artificial incubation.

- 1.—Let the machine work for 24 hours, at a steady temperature of 102° to 104°, before placing the eggs in the drawer.
- 2.—The temperature of the drawer should be maintained as nearly as possible at 104°, but it is better to work at a degree lower than this, than to exceed 104°.
- 3.—A few minutes after the wick is freshly trimmed and lighted, the flame is apt to increase in size; it should, therefore, be left low at first to allow for this.
- 4.—The fresher the eggs are when put in the machine, the better. I have had the best results from eggs which had not been laid longer than five days.
- 5.—Before placing fresh eggs in the machine, they should first be put in the drying box. If there is no drying box, a piece of flannel should be placed between the warm and the cold eggs, so that the former may not be chilled.
- 6.—When the chickens are hatching, it will, as a rule, be found better to leave them alone, and not attempt to assist them out of the shells.

#### Foster Mothers.

In my own poultry yards, although many of the chickens are hatched artificially, I still prefer the old fashioned method of rearing them under hens, which are set about the

same time that eggs are placed in the incubators. This plan ensures every hen having a large brood, even if she has not hatched many chickens herself. It is necessary, however, to possess, at least one good foster mother, which may prove very useful for rearing the earlier hatches of young birds from the incubators, at a time when reliable broody hens are difficult, if not impossible to obtain. experience too, with foster mothers, has been, that they are more successful and more easily managed in the winter months, when there is little or no sun, than is the case later in the season when "King Sol" appears, making the daytime much warmer than the night; it is then difficult to regulate the lamps, so as to maintain a uniform temperature. In rearing chickens artificially, the difficulty lies in preventing them from getting over-heated, which brings on debility and diarrhœa.

I have found that with careful and intelligent management, some of the better made machines will answer fairly well, and I have myself raised some splendid broods by means of them; but until a rearer is made that will automatically regulate its temperature, in the same way that incubators do, I shall consider them to be by no means perfect. I have used both hot-air and hot-water machines, and I find the temperature is much more easily regulated in the latter than with the former.

# THE WAY TO OBTAIN EGGS IN THE WINTER.

HE only fowls which can reasonably be expected to furnish their owners with a more or less regular supply of eggs during the winter months are pullets which have been hatched in the preceding March and April. Pullets hatched before March usually start laying before the summer is over, and go through moult in the autumn, like the older hens, not recommencing to lay until the following February; while those hatched in May and June rarely lay until long after Christmas is past. The March and early April hatched pullets are then the birds to possess, if winter eggs are desired, and the possession of such pullets is the first requisite towards success in attaining this object. Hens bred the previous year, on the contrary, however well managed and fed, will rarely lay again before the first week in February. If they do lay at all generally, during November and December, when new laid eggs are scarcest, it may be taken as an exceptional occurrence, and outside the regular course of things. They have but recently passed through the trying ordeal of moulting, when the system has become debilitated by the drain made upon it in supplying the young new feathers, and the laying hen requires a much needed rest before entering again on her egg laying career. The production of eggs in the winter is, then, not so much a question of feeding, as that the fowls who are to produce them should be young ones.

The next point to receive consideration is the proper housing and accommodation of the laying stock. The birds must be warmly housed at night, and what is equally essential, they must be provided with a dry and sheltered retreat, where they can find protection from rain and wind, for fowls cannot replenish the egg basket if exposed to wet and every wind that blows. For further advice on this subject, I would refer the reader to pages Nos. 10 and 21.

The question of the description of food upon which laying fowls should be fed during the cold months of the year is obviously a most important matter. The first meal in the morning ought to be soft food, because being much easier of digestion than whole grain, the system of the bird begins at once to draw upon it for its many needs. It should be mixed with hot water, and be fed to the fowls as hot as possible. It may consist of biscuit meal, barley meal, and toppings, in equal proportions, and this may be varied by the addition of a small quantity of pea meal or oatmeal. A tenth part of this ration should consist of meat in some form, for it must be remembered that the supply of animal food, in the shape of worms, insects, &c., of which poultry eat largely in the spring and summer months, is practically non-existent in the winter, and such food is the very best kind for promoting laying, and accounts in a large measure for the excellent laying results of fowls which enjoy a free range, where they are enabled to find for themselves food of this description. The

deficiency of animal food should be made good by adding a bullock's lights, or sheep's paunch, after cooking same, or better still Spratt's "Crissel," which is meat in a granulated form, and is all ready for use. Without doubt, cut green bones, fed to poultry, supply the best substitute for insect life, and an admixture of one-tenth of this, by

weight, to the meals above mentioned, makes a well-nigh perfect food for promoting laying, without unduly stimulating the fowl's system. For many years past, cut green bones have been largely fed to poultry in America, with most excellent results, and at the present time reliable bone mills may be purchased in this country, at prices which are within the reach of most people. Spratt's Patent supply an excellent mill for the purpose; also Mr. E. Furness, of Accrington, whose machine I have been using myself for some time past.

Fig. 7.

Green-bone Cutter (Spratt's Patent.)

Fresh bones may be obtained from any butcher at a very

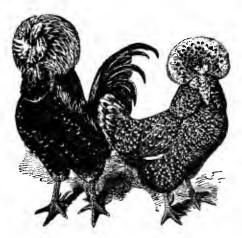
Patent supply an excellent mill for the purpose; also Mr. E. Furness, of Accrington, whose machine I have Green-bone Cutter been using myself for some time past. (Spratt's Patent.) Fresh bones may be obtained from any butcher at a very low price. Shortly after the fowls have been given the meal as directed, they should have a small feed of either wheat, oats (of a heavy sample only), or maize, which will carry them until four o'clock in the afternoon, when they should again receive a substantial feed of grain. If the pullets are looked upon merely as machines for the production of eggs, their laying powers may be still further stimulated by adding to the morning ration some of the condiments advertised for promoting laying

Messrs. Thorley's "Ovum" and Chamberlain's "Aromatic Compound" may be mentioned as amongst the best.

Whether the much valued new laid egg may be purchased too dearly, by resorting to such heightened feeding, as here directed, must be left to the owner's discretion, and to the circumstances of the case. If only March and April hatched pullets are kept as recommended above, it will generally be found to pay extremely well, for as a rule they will respond freely to liberal feeding, but to endeavour to force older birds to lay out of season will prove most probably to be a waste of both money and time.



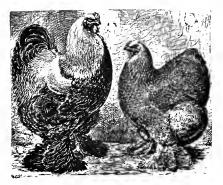
SILVER SEBRIGHT BANTAMS.



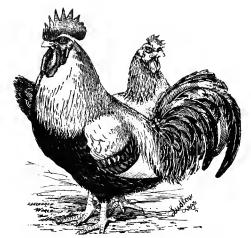
HOUDANS.



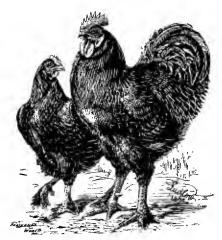
LIGHT BRAHMAS.



DARK BRAHMAS.



DORKINGS.



BLACK LANGSHANS.



## POULTRY KEEPING BY FARMERS.

O one possesses such facilities for keeping poultry profitably as a farmer, and for developing the industry as it should be developed; yet the majority of our large agriculturists have in the past regarded the subject with feelings of indifference, as being beneath their notice. The large arable land farmers who have weathered the trials of the past ten years, and who, in the hey-day of agricultural prosperity ignored everything but corn growing and sheep farming, have been compelled to alter their system of management. Now that it no longer pays to grow corn, they are laying down large portions of their land to grass, and are turning their attention to the production of what were formerly the smaller products of their farms, viz.milk, butter, eggs, and fruit. In the past very little attention was usually directed to these departments on a large corn-growing farm, only a sufficient number of cows and poultry being kept to supply the requirements of the house-A change for the better is gradually and surely taking place; it is beginning to be realised that these byeproducts well repay greater attention being paid to them, and among them none more so than the production of poultry and eggs.

The farmer pays attention to the breeding of his horses cattle, sheep, and pigs—why, then, neglect his poultry?

Instead of being conducted in a haphazard manner, as is generally the case, the poultry department should be as well managed as the rest of the farm, and that it will pay for this increased attention is certain. Some time since, a man who is farming in a small way in my own neighbourhood, and who had read in the local newspaper an article written by me on the subject of poultry keeping, in which I deplored the fact that fowls were not kept more extensively by agriculturists, assured me that his poultry paid him better than anything else on his farm, and added that he was pleased to see me advising farmers to give greater attention to poultry keeping. I may mention that in this case only common cross-bred fowls were kept, so that no fancy prices were obtained for eggs and chickens.

The average farmer is in a position to keep three or four times the number of fowls that is usually kept. For greater part of the year they will need little food besides what they find for themselves round the homestead and stackyard. It must be remembered that on a farm a great deal of corn would necessarily be wasted, but by the aid of the fowls the value of every shed grain is recovered, and all

In speaking of the immense demand existing for poultry and eggs—especially in the great centres of population—a recent writer (after showing that upwards of £30,000,000 per annum is paid for foreign agricultural produce imported into this country which could be produced equally well here, expresses surprise that so many eggs and poultry come from abroad, and that the value of these imports should be rapidly increasing; and that, while England herself suffers acutely from agricultural depression, she yet affords the best market in the world for the surplus agricultural produce of more thrifty nations. In 1897 over £5,000,000 worth of eggs and poultry was imported into this country.

matter of a consumable nature is turned to good account; nothing will escape their scrutinizing eyes. A farm homestead is simply a paradise for poultry. The birds are sheltered from every wind that blows, they have at all times a dry retreat from rain or snow, they roost year after year in the same place, and their food is always of the most varied description. But a farmer should not stop at this: his sphere of operations should be extended to the stubbles and meadows by means of fixed or moveable houses.

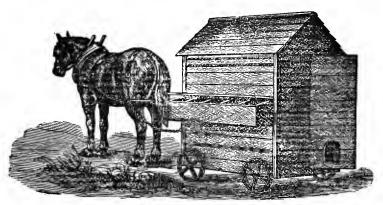
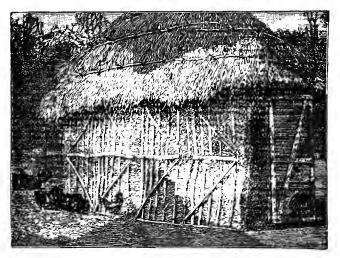


Fig. 8.—Farmer's Poultry House. (Boulton & Paul, Norwich.)

With colonies of fowls located in different parts of the farm the risk of disease is reduced to a minimum, for if an outbreak should occur in any one flock it can with ordinary care be confined to that flock.

I happen to be acquainted with two large agriculturists in Oxfordshire, who are keeping several hundreds of birds on their farms, in moveable houses about the fields, and so far as I have been able to ascertain, their efforts have been attended with the success they deserve. Some of the cheapest and best moveable fowl houses I have seen are those manufactured by Messrs. Boulton & Paul, of Norwich, and Greenwood & Co., of Bedford. They are well and strongly made, and are mounted on iron wheels. One of the Oxfordshire farmers mentioned above, informed me that he had purchased twenty of these houses.

A most serviceable and economical poultry house may be easily constructed of hurdles and straw, materials which



From a Photo.

FIG. 9.—A Rustic Fowl House on the Author's Farm, constructed of straw and hurdles. Inside dimensions: 12ft. by 7ft. and 6ft. 6in. high. To roost 40 to 50 hens. every farmer has to hand. The accompanying illustration is an example of what may be accomplished in this

direction. The idea is not novel, as such shelters for poultry are extensively used by farmers in Kent. The straw is pressed tightly between a double row of hurdles set seven or eight inches apart, which are secured by wire or tarred string to stout stakes driven into the ground. As a precaution against foxes, wire netting should be nailed round the outside and about a foot of it sunk into the ground. Hurdles are laid across the top, from side to side, to carry the roof, which may consist of straw or the trimmings of hedge-rows, the whole being tied down to the upright hurdles and stakes, and afterwards thatched. Such a house may be erected at little cost.

I have myself for some years past kept colonies of fowls about my farm in this way with great success. My experience is that they find for themselves quite half their food, in the shape of worms, grubs, and insect life, and their laying average is considerably higher than with birds of the same breed and age, which are kept in confinement on grass runs.

I have found that the best results are obtained when not more than 30 to 35 fowls are kept in each flock.

A short time since a letter appeared in the columns of the "Standard" in which the writer Mr. Bagot-De-la-Bere—a gentleman who is an authority on the management of poultry and at the same time a practical agriculturist—treated the entire question of "Poultry Keeping by Farmers" with unusual point and force, and in the course of his remarks, highly recommended the system of keeping fowls in colonies about the meadows and fields in moveable

houses. I have Mr. Bagot-De-la-Bere's permission to reproduce his letter, which is as follows:—

### TO THE EDITOR OF THE "STANDARD."

SIR—In your leader in the "Standard" of to-day you refer to our egg supply, and say, "poultry farming on a large scale is a notorious failure." You might also have added with equal truth, that when practised upon the same lines, both dairy and sheep farming have also ended in disaster. The fact is, poultry keeping upon a large scale has proved quite as successful and profitable as other kinds of farm stock, provided the poultry are allowed to enjoy the same advantages as those given to cows and sheep—i.e., snfficiency of range.

To crowd one thonsand, or ten thousand, head of fowl upon a too confined space, is as sure to end in failure as the herding of a hundred, or a thousand, sheep or cows upon a too limited acreage. What I assert, without fear of contradiction, is, that poultry farming upon an extensive scale, practised upon the same rational system we adopt with our cows and sheep, is no failure, but has proved highly profitable, and that our farmers have yet one neglected source from which help may come.

Farmers, as a rule, keep but one flock of fowl, located at their farmstead. They should have other such flocks of fifty each npon all their suitable grassfields within a reasonable distance of their farmhouse, and in case of large fields two or three such flocks may be kept in the same field apart the one from the other. In this way ample range is assured and diseases avoided. I have for over thirty years kept a vast quantity of laying fowls distributed over my grass land in the way described, and I have only once been troubled with disease, and always secured a good profit.

The land has been benefited by the presence of poultry, and the dairy stock has in no way suffered. It is to the farmers, rather than our cottagers, that we must look for our egg supply, if we are to be independent of the foreigner.

I am, Sir, your obedient servant,

K. B. BAGOT-DE-LA-BERE

Flocks of Minorcas of a good laying strain will be found to bring the most satisfactory results, if egg production is made the principal object; and for all round purposes either Plymouth Rocks, Wyandottes, Orpingtons, or Langshans should be kept. The Dorking and Indian Game, while excelling as table fowls, are but indifferent layers. The Dorking too is generally found to be somewhat difficult to rear, and all the varieties of the Game fowl may be objected to for the same reason; the chief economic quality these breeds possess is that they are excellent table fowls.

Amongst crosses, one of the most useful is that produced by mating a Minorca cock with Indian Game hens. are combined the laying qualities of the Minorca, and the table qualities of the Indian Game, and I know of no finer cross to obtain this combination. The Brahma-Dorking is another excellent cross, and one that is very popular with the Sussex poultry fatteners, as the chickens fatten well and realise a good price in the London markets. I am convinced that the Brahma is, without exception, the hardiest of all breeds of poultry, which makes it a most valuable fowl for crossing purposes. The Dorking is generally found to be rather delicate to rear, but when crossed with the Brahma the hardiness of the latter is imparted to the offspring, while the admirable table qualities of the Dorking are to a large extent retained. The best results are obtained by mating a Dorking cock with Brahma hens. Either the Dark Dorking or the Silver-grey variety may be used-the Dark Dorking is rather larger than the Silver-grey-and it is quite a matter of choice which variety of the Brahma is

employed for the purpose. Pullets of this cross will lay many more eggs than either the pure Dorking or Brahma, and they make reliable brooders and mothers, which is not the case with hens of the Minorca-Indian Game cross, from the introduction of the non-sitting Minorca blood.

If the production of table fowls only is aimed at, I would recommend mating an Indian Game cockerel with some Dark Dorking hens; the chickens resulting from such a cross make the finest possible table fowls, being large, plump, and full of quality. There are, of course, other useful crosses, but these are some of the most valuable, and space will not allow me to describe more. I believe, however, that as a rule, it will be found more profitable to keep fowls of a pure breed, and whatever economic quality is desired, it can be found amongst the pure breeds of poultry.

To bring about an improvement quickly in a farmer's existing stock of poultry, some of the finest hens—and especially those which lay until late in the Autumn—should be selected and placed in a pen by themselves, and be mated to a pure male. If table fowls are required, mate with either Indian Game, Old English Game, or Dorking; if layers are wanted, use a Minorca or Leghorn cock or cockerel. To produce a bird which will be both a good table fowl and a good layer, a Houdan male should be used. The chickens from such a cross would mature quickly and make excellent table fowls, and the pullets would be found to lay an abundance of eggs. Houdans are a most useful breed for crossing purposes, as they are first-class table birds and at the same time splendid layers. A cock of this

breed is usually remarkably active, and may generally be allowed to run with from ten to fourteen hens.

I am of opinion that egg production is much more profitable for a farmer than chicken rearing, but to a certain extent the two must be combined, as it will be necessary to rear every year a sufficient number of pullets to replace losses and worn out stock. No hen should be kept longer than her third season, and should then be sold-say in the month of October-for whatever sum she will fetch. A man therefore who keeps 600 laying fowls on his farm would have to rear 200 pullets annually to make good all losses and depreciation in his flock, which would mean that he would have to rear from 400 to 500 chickens every year, to be sure of getting the necessary number of pullets. generally be found advisable to dispose of the cockerels for whatever price they will fetch, so soon as they can be distinguished from the pullets, unless the owner has plenty of room, and is sure of a good market, when it may pay better to keep them until they are fit to kill.

If all the eggs are likely to be sold for market purposes it will not be necessary to run more than one male with 30 hens, and even then it is probable that most of the eggs will be fertile; if, however, it is desired to breed from any one flock it will be well to place three male birds with the 30 hens, when a large percentage of strong chickens may be expected.

In keeping a large number of laying fowls in this manner on a farm, the question of the cost of food again becomes of the utmost importance. More especially will a consideration of this question force itself upon the mind of the arge poultry keeper during the winter months, when his returns will be small as compared with expenditure on food. In my chapter on the "Economical Feeding of Fowls," I have strongly recommended the use of potatoes as a poultry food, and since no one can grow them so cheaply as the agriculturist I would direct the attention of my farming friends to my observations on the subject.

In advocating the system of poultry keeping for farmers recommended above, I must at the same time add, that it would be extremely unwise for any man to purchase a large number of birds and commence at once to keep poultry on a large scale. He should commence in a small way, keeping only a few flocks at first, and gradually increase the number when he has satisfied himself of the financial success of the venture.

It is most essential that from the very commencement a strict account should be kept of all expenses and receipts. There must be no guess work—nothing must be taken for granted. It will then be an easy matter to make a balance sheet at the end of the year, and ascertain whether a profit has been made.

I am acquainted with an extensive agriculturist, who by a very simple system of management draws over £120 per annum from his poultry. This gentleman has very kindly placed at my disposal full particulars of his methods of management. He tells me he lays himself out entirely for egg production, only rearing enough chickens to replace old birds, and keep up his flocks to the required numbers. He possesses ten separate homesteads, and at each homestead 100 laying hens are kept, with six or eight male birds,

making a total of about 1070 in all. They have the entire run of the homestead at each place, and also the adjoining fields and meadows. In reply to my question whether the fowls committed any damage to the growing crops in the adjacent fields, he said, that of course they did do a certain amount of damage, but it was of such a trifling nature as to be of little consequence.

Every flock of fowls is allowed two bushels of sound head corn, or its equivalent in tailing corn, per week, or 13 quarters per annum, valued at £14 6s. od. This gentleman believes that where fowls are kept for egg production, and have the advantage of a free range, their food should be limited to a certain fixed quantity, which should be something below their actual requirements, with the object of inducing them to forage about diligently, to make up the deficiency by their own exertions. At each homestead, enough chickens are reared annually to provide pullets to replace the old hens-which are drafted out in the early autumn-and to rear these chickens an extra bushel of corn per week is allowed for about six months of the year, the cost of this extra food being covered by the sale of the cockerels and the old hens; so that at the end of each year his stock is as valuable as it was at the commencement. The work of attending to the birds is done by the Manager at each homestead, who is paid r/- in the f on the total amount of the sales of eggs and fowls during the year, and as the greater portion of the labour is necessarily done in the master's time, a further sum of £,5 per annum is charged for labour in the poultry balance sheet, although at the same time it may be added that the man's time does

not seem to be missed in attending to other duties on the farm.

The eggs are sold to shop-keepers in the neighbouring town, with whom a contract is made for the entire year, the shop-keeper agreeing to take them at so many per 1/-, according to the month of the year, as follows:—In January, 10; February, 12; March, April, and May, 15; June, July, and August, 12; September and October, 10; November and December, 8. On an average 80 eggs are sold from each hen, and they realise, as nearly as possible, a 1d. each, or 6s. 8d. a year. At each place the balance sheet will read as under:—

Expenses				RECEIPTS.			
	£	s.	d.		£	s.	d.
*13 qrs. corn at				Sale of 8000 eggs			
22/	14	6	0	at 1d. each	33	6	8
Labour at 1/- in							
$\pounds$ on $\pounds_{33}$							
	I	13	4				
And on receipts		_					
for fowls sold	0	6	8				
Additional labour	5	0	0				
Profit		0	8				
£	33	6	8	£	33	6	8
						_	

It is seen from these figures that a profit of £12 os. 8d. is made at each homestead, which, multiplied by 10, gives £120 6s. 8d. as the total for the ten homesteads.

The 1070 birds are valued at 2/6 each, or about £133 15s. od. for the entire stock, and perhaps £30 has

<sup>\*</sup> At the time of writing, good sound wheat, oats, and maize, may be purchased at an average cost of 22s. per quarter.

been spent on coops for the different places. No capital isinvested in poultry houses, as the fowls at each place are permitted to roost in one of the sheds of the homestead. The total sum invested is therefore £163 15s. od., upon which amount a profit of £,120 6s. 8d. is made, or about 75 per cent, per annum. This per centage of profit on the small amount of capital invested is certainly a very satisfactory result, but I tell my farming friend that it should be still greater. The average number of eggs laid by each hen is not large enough; instead of being 82 (allowing 200 eggs for hatching requirements), it should be at least This could be accomplished by keeping a good laying strain of Minorcas. At the present time his stock consists for the most part of barn door fowls, but at one homestead he has established, at my recommendation, a stock of Plymouth Rocks; a sufficient time, however, has not yet elapsed for a comparison to be made between this lot and the others. A cross which I am anxious for him to take up is that produced by mating a Minorca cockerel with Indian Game hens, as described on page 71.

Some of my readers may say that the price realised for eggs is a high one, but I do not think so. The shop-keeper has the advantage of knowing the source whence his eggs come, and of being sure of their freshness—which is not the case when they are purchased in the market—and he is willing to pay a higher price accordingly.

I have published here full particulars of this gentleman's methods of management, because I am impressed with the extreme simplicity of his system, and the ease with which it can be adopted, either in a large or small way, by any

other farmer. If a man chooses to keep a flock of say 55 birds on the above plan, he can do so by allowing them one bushel of corn a week. If he has only one homestead, he could keep them in colonies, about the fields in moveable houses, and limit their supply of food in the same manner.

Another large agriculturist, Mr. Henry Lane, of Evendons, Wokingham, Berks., whom I have known intimately for many years, has also kindly furnished me with particulars of his methods of poultry management. Mr. Lane made a speciality of rearing Dark Dorkings for Leadenhall Market, and he acquired quite a reputation amongst West End poulterers for the superior quality and finish of his birds, which were so fine that they were classed in the market as capons, and I have heard Mr. Lane remark that he has received as much as £1 a pair for them, after all commission charges had heen deducted. Mr. Lane says:—

"I prefer the Dark Dorking as a table fowl to any other breed, for the following reasons, viz., (a) they can be made to attain a heavier weight; (b) they fetch higher prices; and (c) their flesh is of the finest quality. Table fowls of this breed are held in the highest esteem in the London markets. 2. I found great difficulty in keeping my stock of Dark Dorkings up to its proper standard, as regards quality and weight, without buying from the best breeders from time to time for change of blood. I consider that birds of the best strains of exhibition Dark Dorkings combine both weight and quality. 3. In managing my breeding stock, my custom was always to mate one cock with ten hens, giving them the run of the farmstead and adjoining

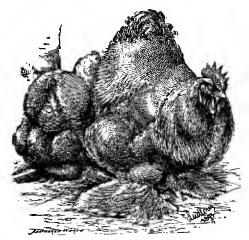
fields. A good run is very necessary for their health. Dorkings are the worst breed possible for confinement. 4. I always preferred to breed from hens in their second or third year. 5. The eggs generally hatched quite as well as with other breeds. 6. I marketed annually about 250 young birds. 7. The cockerels and pullets were reared together until they were six months old, at which age they were shut up for fattening. The plan of rearing both cockerels and pullets together would be open to objection in breeding birds for stock purposes, as after the age of six months the cockerels would become troublesome, and should then be separated. 8. While fattening, both sexes were cooped together; but care was taken to keep them quite apart from the other fowls, as perfect quietude is very important. 9. The birds were always allowed to peck their food. I discontinued cramming many years since, for I found the fowls got quite as fat without cramming, and by discontinuing it I avoided all risk of killing any in the process. 10. The food consisted of finely ground barley meal and coarse suet, mixed with skimmed milk. The milk should be boiled, the fat chopped fine, and the whole stirred together, until it is just stiff enough for the birds to peck it easily. To feed every 20 fowls, took daily about two gallons of meal, one pound of fat, and three quarts of milk. Maize meal in small quantities, to vary the feed, may be used with advantage, also a little coarse sugar or treacle. 11. The food was placed in troughs in front of the coops, and a supply of water was also provided, so that the birds could both eat and drink with ease. 12. The time allowed for fattening occupied about three weeks. 13. The cockerels

would attain an average weight of seven pounds when picked and ready for market, and the pullets six pounds, but many have turned the scale at much heavier weights than these. 14. The average price per bird received for the last year, from Leadenhall Market, has been about 6s. od. The birds, which usually bring the highest prices are those hatched in the autumn, and sent to market in April and May, when the best prices are realised. The reason my fowls always made such high prices, I ascribed to the fact of their invariably being of great weight, combined with excellent quality and finish. 15. I am sorry to say I cannot furnish you with anything like a correct estimate of the actual cost of rearing a Dorking chicken to the age of six months, as they had the run of the farm-yard, and contiguous orchards and fields, which reduced considerably the cost of both food and labour, while at the same time greatly conducing to the health of the young birds. 16. I am quite satisfied that rearing poultry for the table, as practised by myself for many years, and as I have described here, is a profitable undertaking; and if I had the opportunity of keeping fowls again, I would go in for poultry keeping on a much larger scale. 17. All the fowls fattened were sent to Leadenhall Market, consigned to a salesman, who charged 5% commission on the price obtained.

I should like to add that in breeding Dorking fowls with success, so much depends upon the nature of the soil. To attempt to rear them on wet clay land is out of the question; a sandy soil, or land with a chalk sub-soil is the most suitable. At one of my farms, where the land was clay, and which was rather low lying and damp, I found it



PLYMOUTH ROCKS.



BUFF COCHINS.

almost impossible to rear birds that were worth having."

These are instances where farmers living within a few miles of my own home make poultry keeping pay remarkably well, although having no special advantages, other than every farmer possesses. To go further afield, I may add, that when visiting the principal poultry shows in the Midland and Southern counties I annually come in contact with poultry keeping farmers, who having taking up pure breeds of poultry a few years since, and commenced to exhibit the best specimens, have succeeded in making a name for themselves as breeders and exhibitors of that particular breed, and as a result have been able to dispose of their birds and eggs at essentially fancy, and consequently eminently satisfactory prices.

There are farmer fanciers of every breed of poultry that is exhibited, men who take as much interest in breeding and showing their birds as they do in breeding horses, cattle, and sheep, and what is more to the purpose, in many instances make more profit out of their poultry than they derive from any other department of the farm. In not a few cases, I have been assured that the poultry stock has paid better than all the other departments added together. I know personally a young fancier, farming in Kent, who two years ago, at the Crystal Palace, exhibited six birds of one breed—all bred by himself—and won prizes to the value of £14 ros., besides selling some of these birds and others remaining at home at quite fabulous prices. It is obvious that poultry rearing under such circumstances must prove extremely remunerative.

## THE TRUTH ABOUT POULTRY FARMING;

Or, the Production of Poultry and Eggs for Market.

POULTRY Farming seems to have a strange fascination for many people. I am frequently asked for advice on the subject by persons of diverse tastes, and occupying various grades in society, but all, for the most part, betraying more or less ignorance of the practical side of poultry management. As a rule, such little experience as they possess has been gained by keeping a few fowls in a backyard or garden, with which—having a variety of refuse food at their disposal—they have naturally been successful. These questions take various forms, but the gist of all is the same, viz., can a living be made by poultry farming, and what branch would you recommend a beginner to take up?

The substance, in extenso, of my replies to these poultry farming enthusiasts, has been as follows:—I may at once say that no one should think of depending upon poultry farming for a living, and certainly not one who is admittedly "a beginner." Previous experience of poultry keeping—and that on a fairly large scale—is absolutely essential, and I would strongly advise every aspiring poultry farmer to commence in a small way, and keep fowls as a hobby for

several years, until the details of management are understood, and to depend upon some other occupation for a living. After mature consideration of the subject, during many years' experience as a poultry fancier, I have been led to form the opinion that the only persons who are in a position to produce chickens and eggs in any quantity, for the express purpose of supplying the markets, at a profit to themselves, are extensive occupiers of land, who are able to give their fowls ample range, so that the birds may be enabled to find for themselves a large proportion of their food, and laying stock can be kept apart in flocks or colonies at a sufficient distance from each other to ensure immunity from disease. With these conditions in one's favour, and keeping poultry as an adjunct to some other occupation in connection with this land on which the birds are kept, the production of fowls and eggs for the market, on a fairly large scale, may be made a remunerative business. Under any conditions, however, of a less favourable nature than these, commercial poultry farming on a large scale—or the production of eggs and poultry in large quantities, to be sold at current market prices-when conducted as a separate business, has never yet been carried on at a profit, and probably never will be. Such undertakings in the past have always failed, as they were practically certain to do, when the above-mentioned conditions, which we regard as being indispensable for the attainment of success, have been absent.

No one is in a position to keep poultry to such advantage as the farmer, and if ever the enormous quantities of poultry and eggs now annually imported into this country are to be

appreciably reduced, it will be brought about mainly by increased efforts in this direction on the part of our farmers The farmer has very many advantages in and landowners. his favour for keeping poultry to profit, which other people His fowls enjoy the benefit of ample range. do not possess. and are able to find for themselves quite half their food, in the shape of waste corn, worms, grubs, and insect life. this way a flock of laying hens can be kept round a farmstead, or in colonies about the meadows and fields, at an expenditure for food of 1/2d. to 3/4d. per bird per week-or from 2s. 2d. to 3s. 3d. per annum. I have proved this for myself by keeping colonies of laying fowls about my own farm in moveable houses. It will be seen also that my farming friend, a description of whose system of poultry management is given on page 75, was able to keep each of his flocks of 107 laying fowls at a fraction over ½d. a week per fowl, or at an average cost for food for each bird of 2s. 4½d. per annum. In the second place, no rent is charged to the poultry department on a farm, for the simple reason that the cows and sheep are already in possession, and from them the rent is expected to be derived. Thirdly. the farmer is in a position to keep a stock of fowls at a minimum cost for labour. Fourthly, as a rule on a farmexcept in the case of outlying flocks-no extra expense is incurred for buildings.

The term poultry farming is usually understood to mean the keeping of a large number of fowls on a piece of ground, of more or less limited extent, which is divided by partitions of wire netting into the necessary number of runs. The birds are thus kept in a state of confinement, which means that the whole of the food consumed must be supplied to them. Now to make poultry pay under such conditions as these is very difficult. Where fowls have a free range, and are enabled to find for themselves a large proportion of their food, or where they consume refuse which would otherwise be wasted, they may easily be made to return a handsome profit; but it is a totally different matter when it becomes necessary to supply them with *all* the food they consume.

The erection of the necessary houses and runs will entail a considerable outlay of capital, ranging from £30 to £75 for every hundred birds. Upon this [capital sum interest must be charged, added to which there will be a further annual charge for repairs to all these appliances.

The labour of attending to a large number of fowls, when kept in comparatively small runs, is very great, and this item alone will be considerable, every subdivision increasing the labour enormously.

In addition to the inevitable losses which will occur by death, there will be a great depreciation in the value of the birds from year to year.

But there is another and more serious matter to be considered. Where large numbers of fowls are kept together, on a comparatively small piece of ground, disease is sooner or later certain to make its appearance, and it unfortunately happens that several of the maladies which afflict our feathered friends are of a more or less contagious nature, so that it is absolutely essential that the attendant should be able to detect the first symptoms of disease, in order that an affected bird may be at once taken away and isolated, to

prevent the disease from spreading. Only an experienced person, possessing a thorough knowledge of the management of fowls, will be able to do this.

With all the heavy items of expenditure enumerated above, and with an ever present liability to losses of stock by disease, one is forced to the inevitable conclusion that the production on a large scale and as a separate business, of eggs and chickens, to be sold at current market prices, with profit to the producer, is an absolute impossibility. will assert further that, no one who has ever studied the question with more than superficial closeness can come to any other conclusion. And yet one is continually reading glowing accounts of the possibilities of poultry farming, written by men who are recognised authorities on the management of fowls. For such writers, whose advice carries weight, to advise the keeping of thousands—or even hundreds-of birds under the circumstances I have described, is in my opinion most dangerous, and is calculated to induce many a man to lose his money by embarking in such an undertaking. Yet, extraordinary though it may appear, and in spite of some warnings to the contrary, it is certain that this mania for poultry farming exists and, moreover, is widespread, and the persons who are tempted to embark in such ventures are generally those whose knowledge of the subject is of the most elementary nature.

A very great deal of what has been written in the past concerning the possibilities of poultry farming has been of too theoretical a nature. I subjoin a few illustrations in point:—Mr. W. Vale, who has done good work as a

specialist for diseases of poultry, has, during the last few years, published a small work, entitled "Successful Poultry Farming, or How to Make a Large Profit by keeping any Number of Fowls," in which he says:-- "A thousand fowls can be kept in a thriving condition upon one acre of land or 8000 upon ten acres. In fact, if only eight fowls are placed in each of the fowl houses and they are built in accordance with the plans in my booklet on this subject, they will not cover one half of the land;" and in the preface he says:--"It is a well-known fact that fowls will lay just as many eggs, if not more, when properly managed in confinement than they do when on a free range." Since reading this treatise I have often wondered whether anyone has attempted to put Mr. Vale's suggestions into practice, and if so, with what result. Mr. Vale is an expert in the treatment of disease, and in that capacity his writings are appreciated by the poultry fancy, but the fact of his publishing such advice as the above at once proves him to beoutside his own special department of poultry management In his treatise on Roup, he terms it "the —a theorist. scourge of the poultry yard," thus implying that fowls are very liable to be attacked by that disease, yet in another pamphlet he advocates keeping thousands of birds crowded together on a limited area, under conditions which are favourable to the spread of disease. For my own part I should be very sorry to attempt to keep a thousand fowls on one acre of land, and I have yet to be convinced that fowls will really lay as many eggs in confinement as they will do on a free range, in spite of the very best methods of management; and I am absolutely certain that in raising poultry the largest and finest and most vigorous birds are, as a rule, reared on a free and extensive range; although in making these two last observations I am willing to admit that there may be exceptions, according to the varying circumstances under which fowls are kept and reared in confinement. Mr. Vale estimates the cost of buildings to be £437 per 1000 birds, interest on this sum at four per cent. would be £17, and £25 is charged for annual outlay in repairs to buildings and utensils; making a total annual expenditure on buildings and appliances alone of £42 for1000 fowls.

Another scheme of recent years was propounded by Major Morant in a small treatise entitled, "How to Keep Laying Hens, and to Rear Chickens, in large or small Numbers, in absolute confinement, with perfect success." In writing of the fallacies of poultry farming, Mr. Tegetmeier criticised these proposals of Major Morant's at considerable length, and conclusively showed the utter impracticability of the entire scheme, if conducted on a large scale. Referring to Major Morant's proposal to rear chickens for the market under similar conditions to those under which he proposes laying hens should be kept, Mr. Tegetmeier says:—
"It appears to me, as a practical man, quite outside all serious consideration.

For many years past Mr. Tegetmeier has asserted in the columns of "The Field," and elsewhere, that the production of poultry and eggs on a large scale has never yet been made a commercial success, either in this or any other country, when carried on as a separate business, liable to be charged with all outgoings in food, labour, rent, repairs, and interest of capital. He has also stated that he has in the

course of a lifetime known of scores of poultry farms that have been founded, but all have failed in less than three years, without a single exception.\* Mr. Tegetmeier invariably recommends would-be poultry farmers, who seek his advice, to—"First, ascertain whether any poultry farm has ever been carried on at a profit, and if so, where, and under what conditions?" as "I have never been able to discover one, and know of no such farm in existence." Mr Tegetmeier also says:—"It is a commonly received idea in England that there exist in France huge poultry farms, where fowls are kept by several hundreds, but a long acquaintance with the chief French poultry breeding districts, as well as answers to inquiries I have from time to time made on the subject, enable me positively to deny the existence of such establishments."

How, then, it will be asked, are France and other countries able to export to us the vast quantities of eggs, which are annually received from abroad? The following extract, culled from "The Field" of August 28th, 1897, furnishes an adequate reply. "It is not by keeping poultry on a large scale at mammoth establishments, that France and other countries are enabled to send us such enormous quantities of eggs; it is by keeping poultry on a small scale, where every small proprietor—and France is essentially a country of small holdings—produces on his land as large a proportion of chickens and eggs as possible. It is then by the united efforts of a large number of small poultry keepers

<sup>\*</sup> Any reader remaining sceptical after reading this chapter will do well to procure a copy of Mr. Tegetmeier's "Table and Market Poultry versus Fancy Fowls," and carefully study the chapter entitled "Fallacies of Poultry Farming."

that this vast quantity of eggs is produced for export, and not by the efforts of a few producers on a large scale."

In continental countries the land is usually held by thousands of small peasant proprietors, each one of whom keeps a few fowls on his small holding. The eggs are systematically collected by higglers, and, although the price received in return is but a wretched one, yet it represents really so much clear profit, as the fowls are kept at little or no expense, being fed (when it is necessary to feed them) upon tailing corn, small potatoes, house scraps, and other waste products of the holding. In this, and this alone, lies the secret of the continental egg trade. These are the people who produce the enormous quantities of eggs which year after year are imported into this country, and for which several millions of pounds are annually paid by the British consumer. Considerably over £,4,000,000 was paid in 1897 for eggs alone imported from abroad into this country.

## An Egg Farm, or the Production of Eggs alone.

It has frequently been suggested to me that an egg farm, where eggs alone were produced, and no chickens were reared, might be made a profitable business. I give below a balance sheet of the probable working of such an undertaking for 1000 laying hens for one year. In the first place, the sum of  $\pounds 300$  would be the lowest estimate for which accommodation could be provided for 1000 birds. The stocking of the farm with 1000 pullets, on the point of laying, would cost quite 3s. per head. At least five acres

of land would be required, also a cottage for the Manager, and shedding for storing the corn, stabling the horse, &c., for which a rental of  $f_{125}$  would not be excessive. Manager must necessarily be an experienced man, and £60 per annum would be little enough to pay for such services. The cost of feeding 1000 fowls at 11/2d. per week, or 6s. 6d. each bird per annum, will amount to £325. Annual charge for repairs at ten per cent. on £,300 will be £30. A horse and cart would be required, the annual expense for which would be £25. A loss of stock by deaths of at least five per cent, must be allowed for, and I have charged 9d. per head for depreciation in value of the remaining 950 fowls. On the credit side I have supposed that each hen will produce 10s. worth of eggs, but at the same time I consider this estimate to be a high one. The balance sheet would then read as under:---

nound enem sent			•				
Dr.	£	s.	d.	Cr.	£	s.	d.
Capital expended	l in			By houses and appli-			
houses & applian	nces 300	0	0	ances	300	0	0
*Cost of 1000 pul	lets			By 950 hens at 2s. 3d.			
at 3s. each	150	0	0	each	106	17	6
Rent	25	0	0	By value of eggs pro-			
Labour	60	0	0	duced at 10s. per			
Food for 1000 hen	s at			hen	500	0	0
6s. 6d. per head	per			By balance, being loss	26	2	
annum	· 325	0	0				
Horse and cart	25	0	0				
Repairs	30	0	0	1			
Interest at 4 per o	cent			ļ			
on £450	18	0	0				
				_			
	£933	0	0	£	933	0	0
				. –			

I believe, the above figures may fairly be accepted as conclusively proving that even an egg farm cannot be

<sup>\*</sup> It would not be necessary to run male birds with the hens. (See remarks, page 5.)

carried on at a profit, when it is worked as a separate business, and the eggs are disposed of at current market prices, unless either the items on the Dr. side can be considerably reduced, or the amount of sales can be increased. If, for example, all the labour were done by the owner, a saving of £,60 would be effected; and, again, if the fowls could be fed at a cost for food, of only 1d. instead of 11/2d. per week, this item alone would be reduced at once by the sum of £,107. But, can this be done, when fowls are kept in small runs, and are debarred from foraging for themselves, having to be supplied artificially with the whole of the food they require? It is often possible, when favourably situated, to obtain refuse food at very little expense, but this is not always of a suitable nature, as food for poultry, while it must be borne in mind, that a certain proportion of their food must always consist of hard corn.

On the other hand, I question whether 1000 fowls could be got together whose laying average would be so high as 120 eggs per annum. From many experiments made in the past, I have proved that, by continually breeding from selected layers, the laying qualities of a strain of fowls may be greatly improved, but to do this requires several years of careful breeding. Here, however, I am supposing that a stock of 1000 pullets have been got together from various sources, and, I much doubt if their laying average would reach 120 eggs per annum; while some hens might lay as many as 150 and 160 eggs each, the majority would probably fall far below the average.

I desire then, to make myself clearly understood. To

make poultry keeping pure and simple pay, the owner, in addition to possessing a complete knowledge of the management of poultry in health and disease, should have the benefit of one or all of the following advantages:—First, be able to feed his stock largely upon refuse from hotels, restaurants, confectioners, or other inexpensive sources; second, do all or the greater part of the labour himself; third, obtain the best possible price for table fowls and new-laid eggs by dealing direct with the consumer; or make fancy prices of his birds and eggs by keeping a pure breed, and occasionally exhibiting his best specimens.

There are men going about the country stating that they make poultry farming pay well, but they omit to add that they are able to avail themselves of one or all of the above mentioned conditions. If such important facts are withheld, statements like these become very misleading.

## FANCY POULTRY FARMING.

NOW come to a different phase of poultry farming. Fancy poultry farms, or establishments for the sale of eggs and fowls at fancy prices, are the only poultry farmsif such establishments can strictly speaking be called poultry farms—which have ever been made to pay in the past, when conducted as separate businesses and on a large scale, and these undertakings have been wholly indebted for their success to the fact that essentially "fancy" prices have been obtained for eggs and birds, which has enabled the owner to cover all the heavy outgoings and risks that are necessarily incurred in the management of large numbers of poultry when kept in confined runs, and to still have a substantial profit left. At the same time, it should be stated that many of these establishments have eventually come to grief, from mismanagement and other causes, and have never been financial successes from beginning to end. Others, however, have been signally successful, and having had considerable experience myself, during the last fifteen years, of fancy or prize poultry farming, I propose to describe here a fancier's poultry farm, and furnish plans for the arrangement of the runs, the most suitable houses, and give hints on the establishing and working of a fancy poultry farm.

Pure-bred fowls cost no more to rear and keep than crossbred ones, while birds and eggs will almost always realise at least double the prices that can be obtained for those of ordinary fowls. During the past ten years the business in exhibition and pure-bred poultry and eggs has attained enormous proportions, as is evident to anyone on reference to the advertisement columns of the leading poultry journals.

It will, however, perhaps be well at the outset to give a word of warning, for a great deal of misconception prevails regarding the possibilities of this branch of poultry keeping. I am constantly being asked for advice on the subject, and, from the nature of the inquiries, I gather the fact that there exists a prevailing idea amongst the uninitiated that no previous experience is necessary. greater mistake could not possibly be made. If an inexperienced person were to invest some hundreds of pounds in fancy poultry farming, he would almost certainly lose every penny of it. To make even fancy poultry keeping, on a large scale, a profitable business, it is, in the first place, absolutely indispensable that the owner should have a thorough knowledge of the management of poultry in health and in sickness, and also possess the further qualification of being a good business man, who is able to dispose of his produce to the best advantage. Secondly, it will be an immense gain if he has the benefit of one of the following advantages, viz., (a) Be able to do all, or the greater part of the labour himself. (b) Be able to feed his stock largely on refuse from hotels, restaurants, or food obtained from other inexpensive sources.

The enthusiastic poultry keeper must not let his enthusiasm tempt him to launch out too quickly. There is

no business that should be extended more gradually than a poultry farm. It will be well, even in the case of an experienced poultry keeper—for he may eventually find to his cost that his knowledge of poultry management is less than he imagined—always to commence in a small way, and gradually add more houses and runs and stock, as his knowledge increases, and after it has been satisfactorily proved that the business is likely to be a financial success.

Before commencing to keep poultry on a large scale, there are several important points which should receive very careful consideration. To begin with, there will be at once a tremendous depreciation in the value of all houses and appliances. That is to say, at the end of the first year all the houses and appliances will be worth considerably less than they originally cost, which means that if it became necessary to sell out at the end of the first or second year, the owner would do so at a serious secrifice. Secondly, there is a great depreciation from year to year in the value of the stock birds. Thirdly, allowance must be made for the annual repair of houses and appliances. All these items would be considerable in a large establishment.

In increasing such a business it would be a good and safe plan never to spend more than the amount of the profits of the preceding year. I remember to have read a few years since, an account of a large chicken-rearing establishment in America, which was said to have paid remarkably well for the first three years, but the fourth year a serious outbreak of disease occurred, which swept away two-thirds of the stock, and as a consequence wiped off the profits of the previous three years.

By keeping a pure breed of fowls, and advertising eggs and stock birds in the fancy press, also by occasionally exhibiting some of the finest specimens, one's name will gradually become known far and wide as a fancier of that particular breed. In the course of a few years a strain will be established, and comparatively high prices may be then obtained for birds and eggs. In this way the foundation of my own poultry yards was laid, some fifteen years since. A flock of twenty pure bred hens, of a certain breed, having been purchased from a neighbouring fancier, the idea occurred to me to advertise eggs from these birds in the "Exchange and Mart," and other papers, which I at once proceeded to do, asking 3s. 6d. per sitting for them. Orders came in rapidly, and I sold all my surplus eggs in this way, and could have sold many more. The following season found me with 40 laying fowls of the same breed and 20 of another variety, and by spending a few pounds in advertising, all the eggs these 60 birds produced were disposed of in the same manner. My success during these first two years served to assure me that a market existed for pure bred fowls and eggs, and I again made preparations to increase my stock of birds. I began also to see that by keeping a uniformly better class of fowls, and by being successful in the show pen, it would be possible to obtain still higher prices for fowls and eggs, and therefore with this idea I commenced to exhibit some of my best specimens. Like all beginners, however, I made many mistakes. Instead of confining my attention to one variety-or at the most to two-I showed specimens of all the different breeds I kept. But to be successful in exhibiting poultry,

it is necessary for the beginner to make a speciality of one breed, and confine himself to showing specimens of that breed alone; and this I found myself compelled to do, if any degree of success was to attend my efforts as an exhibitor. The breeding and exhibiting of exhibition fowls is an art, and its successful cultivation in the case of each variety will entirely depend upon the amount of care, judgment, and even study, that can be devoted to the work. By attempting more than one variety, a fancier's attention is divided, his judgment will be less correct, and the obstacles to be surmounted will be tremendously increased. We live in an age of concentration of effort, thought, and purpose. Every subject under the sun is specialised, and reduced to a science. This same persistent effort in a certain direction—in the case of the poultry fancier, to breeding up to an imaginary standard of perfection—has been at work for many years in the poultry fancy. The cultivation of each breed has become a science, and the fanciers who have been most successful are those who have brought the greatest amount of individual study to bear upon the subject.

I have satisfactorily proved that large numbers of fowls can be kept, with perfect success, in confinement, on grass runs, provided the runs are made sufficiently large for the grass to be preserved, and that the birds are managed by an experienced person. For many years I kept from 200 to 300 laying fowls on two acres of land, with splendid results, the birds laying remarkably well, and keeping in excellent health. The two acres were divided into 20 runs, each accommodating from 10 to 15 hens,

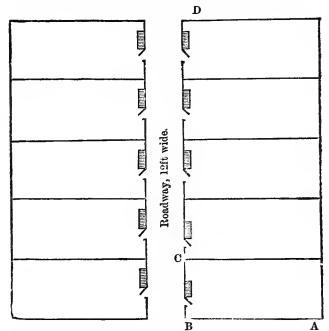
with one or two male birds according to the breed. An acre measures 220 yards by 22 yards, so that it may be divided into 10 runs, each measuring exactly 22 yards by 22 yards. A moment's reflection will show that 22 yards by 22 yards gives a good sized grass run for this number of birds. With 15 hens and 2 males in each run, 150 hens and 20 male birds will be kept to the acre, and there will be plenty of grass in each run, even in the middle of winter. My rent for these two acres of meadow land was  $\pounds 4$ , but this amount was returned to me by the sale of the fine crop of grass which the poultry runs produced each season.

It is frequently asserted that large numbers of birds cannot be kept long in confinement on the same grass run, as after a time the soil becomes fouled, and they cease to thrive. The real reason of this is not that the ground becomes fouled, but because the natural supply of grit and sharp sand which the birds find amongst the roots of the grass, to aid digestion, becomes after a time exhausted. If sharp grit is supplied to them, they may be kept in confinement on grass runs with absolute success, and for any length of time; and the fouling of the ground will be counteracted by the immense crops of grass which the runs will produce, taking up all impurities from the ground as it grows.\*

The 20 houses with covered scratching sheds attached, cost, including labour, £100; wire netting (about 1400 yards) with staples for affixing same, £18; stakes to support the wire netting, gates, gate-posts and hinges £10;

<sup>\*</sup> During the process of digestion the sharp edges of the grit are worn away, and the grit thus becomes useless.

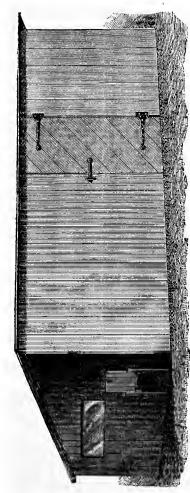
FIG. 10.—PLAN OF A FANCY POULTRY FARM.



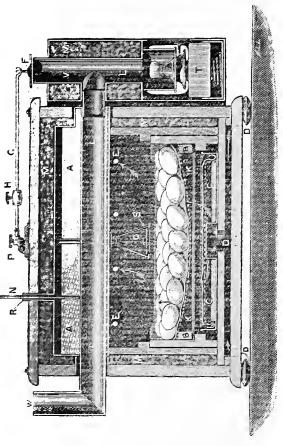
The Runs covering one acre of grass land, showing arrangement of same, positions of Houses, &c., divided into ten Runs, each Run measuring one-tenth of an acre, and accommodating fifteen Laying Hens and two Male Birds, or a total of 150 Hens and 20 Cocks to the acre. Length of each Run—A to B, 30 yards; width, B to C, 16 yards. Length of front of five Runs, B to D, 80 yards. Width of Roadway between two sets of Runs, 12ft. Total cost of fitting up one acre on the above plan, £70.

N.B.—In breeding exhibition poultry the mating of the stock birds is very important, and it is therefore necessary that each breeding pen should consist of one cock and five to eight hens only. The Runs and Houses may be arranged on the above plan, but can be made much smaller. The Runs might be made 20 yds. by 8 yds and thirty such Runs could be erected on an acre. The dimensions of the House should be 9ft. in length, 3ft. 6in. in width, 5ft. high, in front, and 3ft. 6in. at back. Design same as Fig. 11.

# FOWL HOUSE AND COVERED RUN.



Shelter to the left. In warm weather a frame-work door of wire netting may be Fig. 11.-Design for Fowl House and Covered Run (see accompanying Plan), for fifteen Laying Hens and two Male Birds. The Birds roost to the right of doorway, Covered substituted for ordinary boarded door. Plenty of light should always be provided.



# HEARSON'S CHAMPION INCUBATOR,

SECTIONAL DEAWING SHEWING INTERNAL ARRANGEMENTS.

AA, Tank of Water: BR, Movable Egg-tray: CG, Water-tray; DDP, Holes for Fresh Air: EE, Holes for Ventilation: F, Damper; G, Lever; H, Lead Weight: KK, Shps of Wood: LLL, Lamp-chinney and Fluctupe: MMM, Non-conducting Material: N, Tank-thermometer: O, Needle for Communicating the Ex-Communicating the Exapsule; T, Petrolenni-lamp; V, Chinney for Discharge of Surplus Heat; W, Chinney for Discharge vansion of Capsule (s) to the Lever (G); r, Milled Head-screw; r, Filling 1 of Residual Product of Combustion, labour in erecting wire netting, hanging gates, fixing houses, &c., £12. The entire expense of fitting up the two acres, and furnishing 20 houses and covered runs, did not exceed £140.

A plot of ground, 22 yards by 22 yards, gives 484 square yards, which is exactly one-tenth of an acre, but in erecting a number of fowl runs, side by side, it will be better to make them in the form of a parallelogram, rather than that of a square, in order to reduce the distance in walking from pen to pen. It is suggested therefore that each pen should be made 30 yards long by 16 yards wide, which will give 480 square yards, or as nearly as possible the same sized run. On reference to the plan it will then be seen that the length along the fronts of five runs will be reduced from 110 yards (22 by 5) to 80 yards (16 by 5). This question of distance becomes of great importance where the wants of many birds have to be attended to, and should receive careful consideration when planning a poultry yard.

All the houses should be built with the fronts forming part of the front of the pen, so that eggs may be collected, houses cleaned, and doors shut at night, without it being necessary to enter the run. The gate of each pen should be attached to one end of the house, and the wire netting can be brought across the top of the house, in continuation of the wire fencing, to prevent the birds from flying on to the roof, and thence out of the pen. The fowls should also be watered from outside the front of each run, and to effect this, the platter for water should be placed close to the wire fence. With the houses and runs arranged in this way, it is obvious that one man will be able to attend to the wants of

a large number expeditiously, and a great saving of labour will be effected, which is a most important factor in the management of a large poultry keeping establishment.

A most suitable house for the accommodation of 15 hens (with two male birds as well), kept in such runs as I have described, is made of the following dimensions, viz., 14ft. long, 5ft. 6in. wide, 5ft. 6in. high in front, sloping to 4ft. high at the back. The space to the right of the doorway (5ft. by 5ft. 6in.) should be fitted up with moveable perches, running across the house, and placed about 16 inches apart. In extremely cold weather, this roosting space may be shut off from the scratching apartment by a partition of felt, or a curtain of thick sacking, to conserve the animal heat arising from the birds at night. A few holes should be cut in the sides near the roof for ventilation. on the left will form the covered shelter, or scratching pen, to which the fowls may be confined in bad weather. There will be room here also for the nest boxes to be placed, either facing the doorway, or just to the left of it. A pane of glass, 2ft. long and 1ft. wide, should be let into the end of the scratching shed to admit light; this should be removable, so that it can be taken away in warm weather, and wire netting substituted to allow additional ventilation. During the summer months it will also be well to substitute a frame-work door, covered with netting, for the ordinary fowl house door. The fowls' entrance should be at the scratching-shed end of the house. The roof should be boarded first, and then be covered with either galvanised iron or felt; the latter is the cheaper, but iron is the more durable, and is to be preferred. The sides should be of weather-board, nailed to fairly stout quartering. Such houses, if erected upon a foundation of bricks or concrete, will stand good for twenty years, especially if roofed with iron, and if they are painted or tarred every alternate season will require little or no repairs.

It must here be observed that the expense of fitting up such a poultry farm on two acres of grass land may be considerably reduced by dividing the two acres into 10 runs instead of 20, each run to measure 40 yards long by 24 yards wide, giving 960 square yards to each, or as nearly as possible one-fifth of an acre; each run to take 30 females and three or four male birds. A house and covered run, the same height and length as described above, but made 8ft. wide instead of 5ft. 6in., would be ample accommodation for the 34 birds, and each structure could be built at an average cost of £6 10s., or £65 for the ten houses. this way £35 would be saved in capital expended on fowl houses, and a few more pounds would also be saved on wire netting, posts, &c. The plant, on a two-acre poultry farm arranged in this manner, could be erected for little more than £100.

If the whole of the labour of erecting houses and runs were done by the owner, as it ought to be, and as I have advised it should be, a saving of many pounds might be effected; and every pound saved means less money locked up, and leaves more capital for working the business. This can be easily managed by adding a run or two runs every year, and erecting houses and runs at leisure times

## THE ECONOMICAL FEEDING OF POULTRY.

ITH every large poultry keeper who is endeavouring to make his birds prove a profitable investment, the question of the cost of food should receive most careful consideration. It is by far the heaviest item on the expenditure side, and it behoves everyone who is keeping poultry in large numbers to exercise his mind in order to feed his birds to the best advantage, and as economically as possible, remembering that every fraction of a penny saved, per bird, per week, may mean, in the sum total at the end of the year's working, the difference between showing a profit or a loss, and in any case will very materially reduce the sum total of the annual food bill.

To further illustrate my meaning, and to emphasise the importance of this food question, it will be seen on reference to the estimated balance sheet given on page 91 that in keeping 1000 fowls, a saving effected of  $\frac{1}{2}$ d. a week, per head, lessens the expenditure on this item to the tremendous extent of £108 6s. 8d. This saving can only be accomplished by feeding to the birds a proportion of cheap but wholesome food, in place of giving them all corn or meal purchased at full price. I propose then to indicate a few possible sources of supply, whence almost every poultry keeper, wherever and however situated, is in a position to obtain a certain quantity of refuse food, or food of a bulky and inexpensive description. As an illustration

in point, a well known fancier of Leghorn fowls recently assured me that he was able to keep his entire stock of fowls at the low weekly cost of a half-penny per head, by feeding them largely on refuse food obtained from large barracks situated in his neighbourhood, from which he annually contracted to take it at a low price. refuse food is to be procured from hotels, restaurants, confectioners, etc.; or the sweepings of corn markets, mills, warehouses, etc., may usually be bought very cheaply. Musty grain, or that which has been damaged by salt water should however, never be fed to poultry. Indeed, in every case where the owner contemplates feeding his birds partly on cheap food, he must use his own discretion as to the suitability, or otherwise, of such material as food for laying fowls, and he will do well to thoroughly test it, by giving it for a time to a few birds only, before commencing to feed it generally to the whole of his stock. He must also use his own judgment as to whether such food really is cheaper in the end than food which is more expensive, but at the same time, of a more substantial nature.

For the past ten years I have constantly kept from 500 to 1000 fowls, and during the latter part of that time I have managed to considerably reduce the amount of the annual food bill by feeding largely on bulky and inexpensive food, particularly during the autumn and winter months, when, however well fed the birds may be, a certain small minority only will be producing eggs. By feeding in this way I have been enabled to winter my stock at very little expense; and my experience has been that the fowls have laid equally as well during the cold weather as they did before I

resorted to a cheaper form of diet for them. As my birds are kept several miles out in the country I am not able to avail myself of those sources of cheap food supply which I have indicated above, but I have succeeded in materially reducing the cost of feeding by other means. For instance, during the winter months, a bushel of small potatoes is boiled and fed to 500 birds every alternate morning. About two acres of potatoes are grown each year; the large tubers are marketed for consumption, those of an intermediate size are saved for use as seed in the following season, and the small ones are given to the fowls. These small potatoes, termed "chats," can, however, usually be purchased by anyone for 1s. a bushel, or about £2 per ton; I have sometimes bought them as low as 10d. per bushel.

It does not take long to cook potatoes if the water is kept boiling. After they are cooked the water should be drained off and the potatoes smashed up, mixing with them barley meal and fine toppings, until the whole mass is of a stiff consistency; a little pea meal may be added with advantage, also meat scraps, or boiled up bullocks' heads or lights, or, better still, cut green bones, which last-named is the best possible substitute for insect life, of which the fowls are deprived in the winter. A few handfuls of Spratt's "Crissel" may also be added with much advantage. In cooking the potatoes, a good plan is to put them in a basket and suspend it in a copper, so that when the potatoes are cooked the basket can be lifted out; this plan does away with the necessity of draining off the water, and where large quantities are required to be boiled another advantage is gained by the water remaining hot, and thus

ready for a second or third lot of potatoes to be cooked. I am aware that potatoes are deficient in bone and musclemaking material, but they are rich in heat and forceproducing elements, and by an admixture of the meals, meat, &c., I have mentioned, which are rich in musclemaking constituents, a cheap and nutritious food is produced. An eminent physician, in speaking of this vegetable, says :-- "Potatoes are anti-scorbutic. No ship's crew ever got the scurvy if well provided with fresh, or even dried The potato is the best gift the New World gavethe Old. The Irish are sometimes blamed for living almost entirely on the potato, but they have some excuse. Nothing else would give them so large a crop, and that it is good food they have shown by producing some of the largest and strongest men and most beautiful women. If thoroughly washed with a good brush, the skins, and what lies just under, are the best part of them, being richest in the mineral salts, which make them so good an anti-scorbutic, which salts may be wasted by careless peeling and toowatery cooking."

On alternate mornings when no potatoes are fed to the fowls, about three pecks of brewers' grains (costing from 2d. to 3d.), is mixed with maize meal. Fowls are very fond of them especially when fresh and warm from the brewery. On a dairy farm, where grains are given to the cows, if the fowls can obtain access thereto, they will be seen to eat of them quite greedily. While not being particularly nutritious, they make a change of diet, and may certainly be classed as wholesome food; and as they are extremely cheap in proportion to bulk, grains may be regarded, in

vulgar parlance, as "filling at the price." Mixed with the same quantity of maize or barley meal and toppings, an excellent feed is produced.

As an occasional change, say once a week, from the above rations, either swedes, mangels, parsnips, or turnips may be boiled up and used in place of the potatoes and grains for the morning feed, the same being mixed with barley or maize meal to the proper consistency.

Good clover hay, though little used in England as a poultry food, is largely fed to fowls in America, where it can be purchased in the form of meal. It is generally prepared, however, by first cutting it into chaff and then soaking it in hot water, afterwards mixing meal with it. Clover hay is especially rich in nitrogenous matter, and when mixed with maize or barley meals, in which carbonates predominate, a well balanced ration is produced.

Cockled seed is another very good and most economical food for poultry. It consists of small black and white seeds along with broken wheat (about half of it being broken wheat) and it is taken out of the foreign wheat by English millers before the latter is ground into flour. It is known as "cockled seed," and is generally sold for adulterating cake used for feeding to cattle. Its analysis is almost identical with that of wheat. My attention was first directed to this substance by seeing it advocated as a suitable and inexpensive food for poultry, in a series of letters on the economical feeding of fowls, contributed to the columns of "Poultry," by Mr. Thos. Carr, poultry lecturer to the Lancashire County Council. Mr. Carr apparently, somewhat overstated his case, by asserting that fowls might be

fed upon all sorts of refuse, and that they could not be poisoned; and in consequence, drew upon himself a considerable amount of adverse criticism, and the idea of feeding on "cockled seed" also came in for a share of ridicule. Before the question had been properly threshed out, the correspondence was stopped by the editor. Resolving to test the matter for myself, I purchased several hundred-weights from the nearest flour mill and experimented by giving it, during several weeks, to a limited number of birds. At first they cleared it up fairly well, but after a time the smaller seeds were left on the ground, this being especially the case in wet weather. I therefore decided to have it ground into meal, and in this form I have continued up to the present time-a period of six months-to feed it largely to my birds, and on the whole I am quite satisfied with the results. I have been able to purchase it at  $\pounds_2$  10s. per ton, and it has cost 10s. to grind it into meal, making with 3s. added for carting, a total cost of £3 3s. per ton, or 3s. 2d. a hundred-weight. At this price it is certainly an extremely cheap food, and I am able to recommend it with entire confidence to anyone who is keeping a large number of fowls. The birds do not eat it readily unless it is mixed with some other meal, but with one-third of either barley or maize meal added, it makes an excellent morning feed; or it may be given simply with potatoes.

Fowls require to be fed sparingly when not laying, or they will grow too fat, but when laying or about to commence, they should have plenty of food, and it should be of a stimulating nature.

## HINTS ON PREPARATION OF BIRDS FOR THE SHOW PEN.

BIRDS should never be shown unless they are in first-class plumage and condition, with comb and face brilliantly red, as condition counts 20 out of a possible 100 points.

To preserve the plumage of birds intended for showing, they must never be exposed to rain or rough wind, but should be provided with a dry and sheltered retreat.

To preserve the foot feathering of the Asiatic breeds, exhibition specimens of those varieties must not be allowed to run on rough stubble, or uneven or dirty ground, but should be kept on a closely mown lawn, or on a fine gravel or cinder run.

Fowls of white or light coloured plumage must be kept from the sun in the middle of the day; the effect of strong sunshine is to turn the plumage from white to yellow, or straw colour. Feeding on maize has a somewhat similar effect upon white fowls.

Several days before a bird is to be shown it should be put in a show pen, or large coop, in order that it may become tame, and show itself to advantage before the judge. If this is not done, it will probably crouch in the pen, and appear very wild.

Fowls of white plumage will often require to be washed before they can be sent to a show. This is done by placing the bird in a large tub, or bath of warm water, about six or seven inches deep. The plumage should be thoroughly soaked, and the water worked between the feathers to remove the dirt. The bird should then be rinsed well in another bath of water with the chill off, and which has been made blue with the blue bag; the degree of blueness should be almost as deep as when linen is steeped in blue water to make it white. The bird must then be wiped as dry as possible (pressing the feathers with the towel is better), always working the same way as the feathers lie. The bird is now ready to be placed in a covered basket in front of a good fire. Birds should be washed at least two days before sending them to a show. It is well to give them a roup pill before the operation of washing, and also before sending them to the show, and again on their return. This will often prevent them from catching cold. As a rule it is not necessary to use soap when washing a fowl, unless the bird happens to be unusually dirty. When used it is frequently difficult to get it out of the feathers again, and it can only be removed by thoroughly rinsing the bird, sometimes in several lots of fresh water. The use of soap-especially when used by a novice in the art of washing-not infrequently makes the plumage look worse than before the washing, unless all the soap is successfully removed by rinsing afterwards, and the feathers are made to web out again, as they ought to do. If no soap is used there will be none to get out, and nine-tenths of the difficulty and risk of washing a bird are at once removed. To those who may feel inclined to question this advice, I would simply say:-"Try it without soap, and compare the results."

The legs of fowls with yellow, white, or black-coloured legs, must be washed, and in the case of yellow and white legs the dirt, which is apt to accumulate beneath the scales, should be removed by means of a pointed piece of hard wood. A little vaseline, or salad oil, should be rubbed on the legs, and the surface can then be polished with a duster.

The comb, face, and wattles should be washed with warm water and soap, and then wiped dry with an old soft hand-kerchief; after which a little vaseline or salad oil should be carefully rubbed on with thumb and fingers. The comb with large combed breeds should be dressed with vinegar, to improve its appearance. This is best applied by means of a soft tooth brush.

In the case of Minorcas and Leghorns, the lobes sometimes become slightly red, or somewhat rough in texture, from exposure to the weather. The redness may generally be removed by shutting the bird up in a darkened house. If this has not the desired effect, the lobes should be dressed twice daily, with a solution of sulphurous acid, in the proportions of one part acid to 40 of water. To render the lobes soft in texture they should be dressed daily with zinc ointment, or Beetham's Glycerine and Cucumber.

The foregoing remarks may appear trivial and unimportant to the uninitiated, but in showing prize poultry, it must be remembered that the experienced exhibitor neglects no legitimate means to improve the appearance of his birds. They are invariably shown by him in faultless plumage and condition, which is only effected by taking proper care of them when at home, and by minute attention

### HINTS ON PREPARATION OF BIRDS FOR SHOW PEN. 115

to such details as I have described, when about to exhibit them. Therefore, the novice who sends his birds to a show, with soiled plumage, dirty legs, or dull looking comb—however excellent they may be as regards quality—neglects to make the most of them, and is at a serious disadvantage in competing with more experienced and painstaking exhibitors.

## THE REARING AND FATTENING OF TABLE FOWLS.

N rearing poultry for the market, the young birds should be best greater. should be kept growing and in good condition, by generous feeding from the first. If this is done and they have ample range, they will generally handle plump when from four to five months old, and will then be quite fit for the table, without it being necessary to shut them up for fattening during the last few weeks of their existence. rearing chickens for table or market, the Indian Game-Dorking and the Brahma-Dorking crosses cannot be surpassed; or still better, pullets bred from the Brahma-Dorking cross should be mated to Indian Game cockerels. By this last cross-breeding one secures a combination of the following qualities, viz., the plump breast of the Indian Game, the fine quality flesh of the Dorking, and the great hardiness of the Brahma; the proportion of each of these breeds in the resulting fowl being, one-half Indian Game, one-fourth Dorking, and one-fourth Brahma.

Fowls are fattened extensively in the counties of Sussex and Surrey, but it is generally carried on as a separate business, the men who fatten them, buying the young birds of farmers and others, as soon as they are old enough to undergo the process. The majority are sent to the London and Brighton markets. The fattener will travel many miles

buying up birds each week; he is content to obtain an average profit of 3d. per bird, and where many thousands are marketed, even with this small margin the business is a remunerative one. The method of fattening is as follows:—The fowls are first placed in coops standing on wooden supports, 3ft. from the ground, and provided with a sparred floor to permit the droppings to fall through. The coops are usually made about 8ft. long by 18in. high, and 20in. deep (front to back); each coop is divided into four compartments, each holding five birds. The front of the coop is also sparred to allow the fowls to feed from a V-shaped trough which runs along the outside.

The usual time taken to fatten a bird is from three weeks to a month, after which period they lose appetite, and if not then considered quite fit for killing, are finished off by cramming. For the first week they are fed simply on pure Sussex ground oats, mixed with water into a sloppy state. The oats are ground up so finely that no trace of the husk is visible, and this meal can only be obtained in the fattening districts of Kent and Sussex. The second week's feeding consists of the ground oats mixed with sour or skimmed milk, to which a little fat is added. The fat is usually purchased from a butcher; it is generally mutton fat, but Russian fat is sometimes used, or even dripping from the kitchen. The third week more fat is added, and at the end of that time the birds generally go off feed, and if the process of fattening is deemed to be not yet finished. the birds are brought into a warm shed and are crammed for another week or ten days. They may be crammed either by hand or by means of a machine. The same food

is given as is fed to them during the third week. The tube of the machine is placed right down the throat into the crop, care being taken not to injure the bird, or to overfill and distend the crop. When the fowl is fat and fit to



FIG. 13.—HEARSON'S CRAMMING MACHINE.

kill the two cartilage bones at the stern will be found to be covered with a thickness of firm flesh. The difference between a fat and a lean fowl is very perceptible, as in the latter these bones are plainly felt. The secret of success lies in feeding twice a day, morning and evening, and giving only just as much as they will greedily eat, and not a particle beyond.

The most satisfactory method of killing a fowl is to break the neck, which is accomplished in the following manner:-Hold the bird's legs in the left hand, taking the head in the hollow of the right hand, with the fingers closing under the throat, then stretch the neck out and, at the same moment, bend the head sharply backwards. The neck of the bird will be instantly dislocated, and its death will have been instantaneous. Directly the bird is dead it should be plucked, as the feathers come off much better while it is warm, and there is less risk of tearing the skin, a "barked" fowl not fetching so much as one that is well picked. Immediately it is picked it must be tied down so that it may retain a good shape when cold. This is done by tying the hocks to the tail, and fastening the feet down to the bird's sides by passing a short looped string from the foot on the one side round the back to that on the other side. sent into the markets are generally pressed into a good shape by means of heavily weighted boards, and the breastbone is broken. This, however, is not recommended in supplying private customers, as it makes the birds appear plumper than they really are, and does the seller no good in the long run.

## THE SIMPLE TREATMENT OF DISEASES.

### INTRODUCTORY—HOW TO PREVENT DISEASE.

O successfully manage a large number of fowls, it is indispensable that the poultry keeper should be acquainted with the different diseases to which they are subject. This knowledge, if it does not extend to the skilful treatment of disease, should at least be sufficient to enable him to detect at once the presence of an ailing bird, so that it may be taken away immediately, and either killed outright, or be completely isolated from its companions, and undergo a course of treatment.

If ordinary cross-bred fowls are attacked by any of the more serious ailments, the most economical plan in the end will be to at once kill the affected individual. On the other hand, a sick fowl that has cost its owner perhaps several pounds, is certainly worth an effort to save its life. I have seen it asserted by some writers whose ideas are of the "rough and ready" order, that it is foolish to attempt to treat remedially the various diseases to which poultry are subject, and that time so spent means both time and money thrown away. I happen to know however, that such indifference towards the sufferings of their birds is not characteristic of the majority of poultry fanciers; on the contrary, I have often been astonished at the amount of

knowledge of the treatment of disease possessed by many a small poultry fancier, frequently a clerk or artisan living in the suburbs of London or one of our other large cities, whose birds are his hobby, and in attending to whose wants he finds the chief relaxation of his life. For such poultry keepers and exhibitors, I feel assured this chapter will not have been written in vain. That such information is oftentimes urgently needed is proved by the fact that numbers of letters are annually received by me from all parts of the country, asking for advice on the subject of disease.

Where large numbers of fowls are kept, a hospital should be provided, as several of the diseases of poultry being of a contagious nature, it is essential that affected birds should be taken at once from their companions and isolated. Any roomy shed is suitable for this purpose. It is better not to heat it, except in severe weather.

When feeding the birds in the early morning, the attendant should carefully look for any signs of disease. The general appearance of each bird should be carefully noted. An experienced attendant will detect an ailing bird almost directly by noticing the appearance of its comb, face, and eyes, or its sluggish behaviour as compared with the other fowls. Like ourselves, poultry are more often attacked by an ordinary cold—known with poultry as wet roup—than by any other ailment, but with this difference in poultry, that if the cold is neglected it is frequently followed by the more serious malady—known as diphtheritic or dry roup. The appearance of a cold (wet roup) can easily be detected, as it invariably shows itself, either in the form of a running at the nostrils, froth or foam in the eye, or a swollen face.

A poultry keeper's first object should be to render the conditions under which his birds live so favourable to good health, that disease may be slow to make its appearance. This will only be accomplished by systematically attending to their wants, and by keeping all houses and surroundings scrupulously clean. Where fowls are kept in large numbers however, disease in some form or other, is certain sooner or later to make its appearance, and the next aim of the poultry keeper should therefore be, to learn to detect the presence of disease in its incipient stages, and so, by promptly isolating the affected individual, prevent the malady from spreading further.

Insufficient ventilation at night in warm weather is a most fertile cause of disease, and especially of roup. The birds cannot have too much fresh air when at roost during the warm months of the year, and to bring this about, a frame work door, covered with wire netting, should be substituted for the ordinary door; and even in the winter months, the house should always be ventilated, so that a current of fresh air may be constantly passing from one side of the house to the other, above the heads of the fowls.

I have not endeavoured to enter scientifically into the treatment of the various poultry diseases, nor is it necessary to do so; indeed the scientific treatises which have already appeared on the subject, though admirable in their way, are to a large extent, incomprehensible to the vast majority of poultry fanciers. I have, however, described in simple language the causes and symptoms of the more common maladies, so that any intelligent poultry fancier, on reference to these pages, may at once recognise the nature of the

ailment that is attacking his birds. The remedies recommended have in almost every case been tested, and have proved to be the most efficacious of those used, amongst a number that have at different times been tried.

### ROUP.

Fowls are more subject to roup than to any other disease. It shows itself under several different forms, but is in all of a more or less contagious nature. In its first stages, roup usually appears in the form either of a running at the nostrils, a swollen face, or sometimes it will settle in the neighbourhood of the eye itself, causing inflammation of the conjunctiva, the mucous membrane of the eye. is generally brought on by a cold or chill, which may result from many different causes. Overcrowding the roosting house, or shutting the birds up too closely at night, without allowing sufficient ventilation, is a frequent cause of roup. The birds get very hot during the night, and on coming out into the cold, possibly damp, air of the morning, the system sustains a chill. Defective ventilation also, by causing the birds to continually breathe vitiated air acts as a predisposing cause. It is also brought on by draughty houses, shutting the door one night and failing to do so the next, changing the fowls from one house to another. exposure to wet or cold winds (on a draughty platform for instance), or to any sudden variation of temperature. quite certain too, that it will frequently attack cock birds which have been fighting; and an outbreak will often occur amongst broody hens, if they are allowed to crowd together on the same nest, getting overheated and the temperature of the blood rising in consequence. It is generally classed under the two headings of Wet Roup, and Dry Roup or Canker, and these again may be subdivided, according to the symptoms manifested, as under, viz.:—Wet Roup (Catarrhal cold; Cold in the Eye; Swollen Face.) Dry Roup, or Canker (Diphtheritic Roup; Ulceration of the Comb; Swollen Head.)

Roup is very erratic; its presence may be manifested by any one of the above symptoms, or it may happen that two or more may be present. To the novice, Wet Roup and Dry Roup might appear to be two distinct diseases, yet such is not the case, and the experienced poultry keeper will soon recognise a connection between the two.

## WET ROUP (CATARRHAL COLD).

When a fowl catches cold, the first symptom noticed is generally a slight discharge from the nostrils. If not taken in time, the discharge thickens, and acquires an offensive smell, the nasal passages become blocked, and the bird commences to cough and sneeze. This is frequently followed by swellings about the eyes and face. At this stage too, the mouth and throat should be examined for signs of diphtheritic roup, indicated by the presence of white ulcerous growths.

TREATMENT.—The affected fowl should be at once taken away from its companions, and placed in a warm shed. Roup pills should be administered, according to directions, and the nostrils and throat should be washed with a lotion composed of one part of Condy's Fluid to sixteen of water. This should be worked into the nostrils by dipping

the end of a feather into the solution, and if the secretion is very copious, it should be forced into the nasal passages by means of a small syringe, inserting the point of the syringe into the slit in the roof of the mouth, and inclining it to the outside of each nostril. A syringe that is curved at the end is best for the purpose. If any of the lotion is swallowed by the fowl, it will not matter, as it is perfectly innocuous. An excellent lotion is also made with powdered alum, allowing one part by weight of alum to four of water, adding a dessertspoonful of Condy to a pint of the lotion. The sick birds should be fed on soft food of a nourishing nature; very little corn must be given until they begin to recover.

There are innumerable special medicines sold for the cure of Roup. I have found the roup pills manufactured by Messrs. Phillips & Son, 5, Commercial Street, Newport, Mon., to be very powerful and effective in stopping the discharge from the nostrils, and in arresting the progress of the disease, and ultimately effecting a cure. I have also at different times used Mr. Vale's remedies with excellent results. They are well known, and probably have a larger sale than any other poultry medicines in this country. Mr. Vale has kindly furnished me with his prescription for compounding Roup pills, which I give below. The formula may prove useful to Colonial poultry keepers, but fanciers at home will find it better and cheaper to procure the pills direct from Mr. Vale.

ROUP PILLS	(MR.	W.	VALE'S	REC	IPE.)
Sulphate of copper			•••		🛓 grain,
	• • •	** *	•••		½ grain.
	•••	•••	•••		6 grains.
Balsam of copaiba					8 minims.

Venetian turpentine and calcined magnesia to make four pills. Dose—two pills night and morning.

### WET ROUP (COLD IN THE EYE).

This is usually detected by the presence of a white froth on the eyeball. If the eyes are swollen, hold the eyelids open and drop a tiny pinch of powdered borax into the eye, repeating the operation every morning. In mild cases, a swollen eye may be quickly cured with this remedy, which is almost magical in its action.

## WET ROUP (SWOLLEN FACE).

In treating for a bad case of swollen face, foment the face morning and night, with hot water. The flannel should be held for some seconds against the face, so that the moist heat may reduce the inflammation. face is much swollen, and the eye completely hidden, it should be fomented with a decoction made by boiling a small handful of camomile flowers in a pint of water. As a rule the hot water is sufficient, but in severe cases the decoction can be used. If the face is painted with iodine, immediately after the fomentation, the swelling will generally quickly subside. The iodine should be put on with a small camel's hair brush, care being taken not to let any touch the eye. If iodine is not used, the face should always be just wiped over with a flannel, dipped in cold water, directly after the hot fomentation, and then wiped quite dry with a towel. The reason for this is that the hot water opens the pores of the skin, and thus renders the bird liable to take a fresh cold, while the cold water closes them, and prevents this occurring.

The worst cases will usually be found to yield quickly to the above treatment if it is persisted in. I have seen fowls with one side of the face swollen to the size of a walnut, and it has entirely subsided in a few days under the above treatment.

If a cold in any of the forms described above is neglected, diphtheritic roup is apt to supervene.

### DRY ROUP.

Dry Roup or Canker is one of the greatest enemies in the shape of disease with which the poultry keeper has to contend. To the experienced fancier who understands its treatment, it is not so serious. He will exercise every care in the management of his birds to prevent an outbreak, and should the disease make its appearance in spite of every precaution, the affected bird will be at once isolated, and undergo a course of treatment, if it is deemed worth the trouble of doctoring. For some time afterwards, the remaining fowls in the run in which the outbreak occurred will be carefully examined daily for further signs of the malady, and in this way it will be quickly stamped out.

## DRY ROUP (DIPHTHERIA).

When it attacks the throat it is known as diphtheritic roup, and in this form the disease is highly contagious. White masses of cheese-like matter form in the mouth and throat; this increases rapidly, and if treatment is not commenced at an early stage, the bird soon dies of suffocation.

TREATMENT.—Unless the fowl is valuable, and therefore worth the trouble of doctoring, it should be destroyed.

A cure however can generally be effected by the following treatment: Pare off daily the cheesy growths with an ordinary quill pen, and then wash the spots with Condy's Fluid of full strength, applied with a large camel's hair brush. I have found this local application most efficacious in the treatment of fowl diphtheria. Condy's Fluid possesses powerful disinfectant and antiseptic properties, and is extensively used in the medical profession. It is an invaluable remedy in the treatment of all discharges from the mucous membrane. The mouth and nostrils should be washed out with the lotion as directed for catarrhal cold.

Mr. Vale, in his admirable pamphlet on "Roup and Kindred Ailments in Fowls," recommends that, after removing as much as possible of the tuberculous growths, the spots should be lightly touched with the following "Canker Lotion":—"Take of strong solution of perchloride of iron, two parts; oil of turpentine, two parts; creosote, one part; and glycerine, sixteen parts. Shake it well together when about to use it. Roup pills should also be given."

# DRY ROUP (ULCERATION OF THE COMB AND SWOLLEN HEAD).

Wartlike growths appear on the comb, face, and wattles, which spread rapidly, each original growth soon being surrounded by a number of smaller ones. The entire head is quickly affected, and the face will sometimes be swollen to such an extent that the bird will no longer be able to see. It is simply another manifestation of the same disease, viz., Roup, but again in an extremely virulent form.

TREATMENT.—The wart-like excrescences should be touched on the top of each, with paraffin oil, afterwards applying a little sweet oil to reduce the strength of the paraffin, as if used alone it is rather too strong. This treatment will usually be sufficient, but sometimes the disease assumes a most malignant character, and when such is the case the ulcers should be dressed daily with Teyes' Disinfectant Fluid, which is more powerful than the paraffin. It should be applied with a small feather, and if any of it runs on to the comb where there are no scabs it must be carefully wiped off. The ulcers should afterwards be touched with sweet oil. I have not known the above remedy to fail if the fowl is in good health, apart from the local disease of the comb. Roup pills should also be administered as before. If the head is swollen the treatment should be the same as advised for swollen face.

### INFLAMMATION OF THE LUNGS.

When a bird is noticed to be breathing with difficulty, sometimes almost gasping for breath, we have a case of bronchitis, or inflammation of the lungs. If the bird is watched it will also be seen to cough every two or three minutes. In ordinary language, the fowl may be said to be suffering from a cold which has settled on the chest.

TREATMENT.—The bird must be placed in a warm shed, and be fed on soft and nourishing food. If the weather is cold, it should be placed in a lined fowl hamper, and be brought indoors every night. It should be given meal mixed with new milk, and all its food should be given warm. Roup pills should be administered, as instructed for that disease. The region of the lungs should be painted

with iodine. The lungs lie just under the wings, where a spot may be found which is more or less free from feathers. Paint once a day, but do not put too much iodine on, or it will fetch the skin off, and so prevent further application, on account of the soreness it will have produced. If, however, a little sweet oil is rubbed on after the iodine it will tend to prevent this. The exact spot to apply the iodine can easily be detected by raising the wings, and parting the feathers, when the movement of the lungs may be seen. The bird should be painted under both wings. If the breathing is heavy a teaspoonful of sweet oil should be given.

An excellent remedy for bronchitis is stewed linseed, which should be prepared in the following manner, viz.:—Put about two handfuls of linseed in a pint of cold water, and place it over a slow fire, so that it does not boil fast. When it begins to thicken it is ready for use, and it should be given—seeds and all—while very hot. Stewed linseed is one of the finest remedies that can be given to fowls suffering from roup or colds. In administering it, however, to a bird with bronchitis it is better to thin it down by adding more water, or the bird may be choked in endeavouring to swallow it.

### DIARRHŒA AND DYSENTERY.

Diarrhœa arises from various causes. If fowls are kept short of water they will drink copiously when they get the opportunity, and this will often bring on the disease. Stale food, irregular feeding, general debility, likewise produce it. When a fowl is suffering from this complaint it will be noticed that the feathers behind are generally soiled.

TREATMENT.—Boiled rice sprinkled with powdered chalk will generally give relief in mild cases. I have found the following remedy \* to be invariably successful: Give a full grown fowl one teaspoonful of powdered chalk and half a teaspoonful of ground ginger, mixing the two together, and making them into pills, with the addition of a little baked flour. Some flour placed in the oven on a plate will be quickly baked. If this fails to effect a speedy cure, from five to seven drops of Collis Browne's Chlorodyne in a teaspoonful of water is an almost certain cure. Boiled rice given three or four times a week is an excellent preventive of diarrhœa for young chickens. Dysentery is but diarrhœa in an aggravated form.

### LEG WEAKNESS.

Cockerels of the larger breeds are often subject to this Having outgrown their strength, the muscles of the legs become weak, and unable to support the weight of the body for any length of time. More often the cause lies in a deficiency of bone-making matter in the food of young, growing chickens. The birds will be seen to squat about, and if driven up will, after a few yards, suddenly lie down again.

TREATMENT.—The treatment consists in giving stimulating food, such as meat, and letting the birds roost on straw. If, in rearing chickens, cut green bone is mixed in

<sup>\*</sup> For the above simple remedy, as well as for several others recommended in this chapter, I am indebted to that practical authority on everything pertaining to poultry management, Mr. W. Cook, of St. Mary Cray, Kent; but having used these remedies myself during the past ten years, I may claim to speak with some personal authority as to their merits.

the meal, in the proportion of one to ten, from the first, legweakness will rarely appear.

#### CRAMP.

Chickens and young growing fowls are subject to this disease, if much exposed to damp under foot in cold weather. The bird will be seen to walk with a stiff gait, and ultimately the toes become contracted and useless for walking.

TREATMENT.—Place the bird in a warm shed, and twice a day hold its legs in warm water for five minutes, well working the joints of the toes backwards and forwards under the water. When taken out the legs must be wiped quite dry with a cloth, and Elliman's Embrocation should then be well rubbed in. Continue the same treatment each day until a cure is effected. Early broods of chickens are most subject to cramp. The only preventive is dryness. Chickens reared under a shed, on a dry earth floor, are rarely attacked; whilst hard, cold floors, such as asphalte, cement, brick, or boards, will quickly produce the ailment.

### GAPES.

Gapes is strictly a chicken disease. It is caused by the windpipe being infested by small worms. These, as they increase in size, gradually obstruct the passage and cause the chick to gape for breath, and at last to die of suffocation. Some writers are of opinion that wet and filth conduce to produce "gapes," in support of which theory it may be said that the disease rarely troubles a yard kept perfectly clean and dry. If this malady should make its appearance it may be checked by placing a lump of camphor (about the size of a walnut) in the drinking water, putting the camphor back into the drinking vessel each time it is cleaned. The

chicken will be noticed to cough and shake its head, at the same time running backwards.

TREATMENT.—A small and rather stiff feather should be carefully pushed down the windpipe, gently twisted round, and then withdrawn, when small red thread-like worms, about half an inch in length, will frequently be found attached to it. Another and better plan is to shut the affected chickens for a few minutes in a small box, and then by means of a small bellows, blow "Camlin" (an advertised remedy) or ordinary lime, through a hole in the side. The chickens inhale this, and the irritation set up by the lime in the bronchial tubes will cause them to cough violently, and throw up the worms.

#### CROP-BOUND.

The food of a fowl is first of all taken into a kind of first stomach, at the end of the gullet, which is called the crop. By the muscular contraction of this organ it is forced into the lower œsophagus or food-pipe, leading into the grinding apparatus termed the gizzard. When the crop refuses to perform this function a bird is what is called cropbound. It is sometimes caused by over-feeding on grain, which swells and distends the crop, so that it loses its muscular power of contraction, but is more often the result of the bird swallowing something which causes an obstruction. This will frequently take the form of long matted grass, which some fowls seem to have quite a penchant for swallowing, and the quantity a fowl will stow away in its crop is perfectly astonishing. I have seen masses of long matted grass taken from a bird, and the crop has felt almost as hard as a cricket ball, before the operation. The bird

usually mopes about, though not in all cases, and generally drinks a great deal of water. Sometimes it will be seen to stand, and twist its body in a peculiar manner. As a rule it will be plainly seen that the crop is distended. When handled it will feel hard, and one can usually tell by

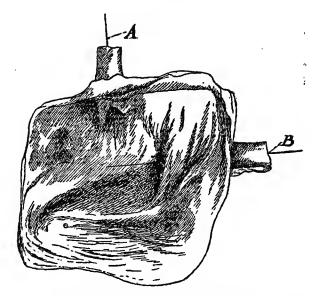


FIG. 14.—THE CROP OF A FOWL.

The crop is laid open, and emptied. The creases were formed when the crop was emptied; this shows how thin-walled it is. A.—The upper œsophagus. B.—The lower œsophagus, leading to the gizzard.

(Reproduced from Mr. Ernest Evans' "Biology of Poultry Keeping," by kind permission of the Author.)

pressing it with thumb and fingers, whether it is caused by corn or matted grass.

TREATMENT.—In most cases an operation is advisable. The fowl should be laid on its back, and an incision made with a sharp pen-knife. This should be about an inch long and in making it the larger blood vessels should be avoided. The contents can be removed with the handle of a teaspoon, and the crop should then be washed out with warm water. The edges of the wound should be dressed with salad oil or lard, and a little should also be put into the crop. Each skin must now be sewn up separately, using a fine needle and silk, and making each stitch separate, by tying it twice and cutting off the silk. The bird must be kept in the warm for several days, and be fed on soft food; no water should be given for the first few days. The operation is quite simple, and, if performed in time, the bird generally recovers.

### LIVER DISEASE.

Disease of the liver, sometimes known as "Going Light," from a symptom frequently manifested, namely, a gradual wasting away of the bird, is generally brought on by feeding largely on stimulating or fat-forming foods. Birds kept in confinement with insufficient exercise are more often attacked by it than those having their liberty on an extensive grass range. The liver, if examined in advanced cases, will be found to be much enlarged, and covered with white ulcerous spots.

TREATMENT.—There is no cure for liver disease when once it has established a firm hold of the fowl's system. To prevent it, birds kept in confinement should be supplied with a constant supply of sharp flint grit to enable the gizzard to properly perform its grinding function, and the

should not be fed largely on maize. Plenty of green food must; be provided, and fresh blood should be frequently introduced. In-breeding is generally considered to be conducive to disease of the liver.

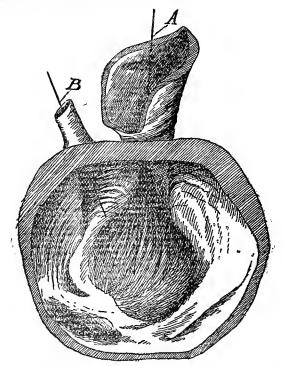


Fig. 15.—GIZZARD OR "CRUSHING-MILL" OF A FOWL.

The gizzard is laid open to show the horny folds with which the interior is lined, and the muscular thickness of its walls. A—The entrance into the gizzard. B—The commencement of the small intestine, or outlet from the gizzard.

(Diagram reproduced from Mr. Ernest Evans' "Biology of Poultry Keeping,"
by kind permission of the Author.

### EGG BOUND.

Pullets and young hens are more liable to be egg bound than are older birds. It is caused by the bird's inability to pass an abnormally large egg, or from the system sustaining a slight chill, and is more prevalent during the cold east winds of March.

TREATMENT.—The best remedy is to pass a feather dipped in salad oil into the egg passage, which will generally bring about the desired effect. The bird should be placed in the warmth in a fowl hamper, the floor bottom of which has been lined with soft hay.

### VERMIN.

Throughout this work I have repeatedly referred to the importance of keeping poultry free from insect pests. Adult fowls should be periodically examined for signs of the presence of these pests. A large colony of lice will frequently be found immediately beneath the cartilage of the tail, which is a favourite place for them to congregate. The place should be promptly dressed with sweet oil to destroy them, and pyrethum powder should be dusted amongst the roots of the feathers under the wings and legs, and round the neck. With chickens, the more weakly individuals of a brood infested with vermin often droop and die without apparent cause. A chick so afflicted, if examined, will be seen literally to swarm with lice. Its body is generally in an emaciated state, and the skin under the wings is of an unhealthily red hue. Relief can be speedily and effectually given by rubbing a little sweet oil round the chick's poll, under the wings, and in other parts of its body.

The interiors of all fowl houses should be periodically painted with crude paraffin oil, using a large whitewash brush for the purpose. The perches should be painted from end to end, and all cracks and crevices require to be well saturated. Paraffin means instant death to fleas, and also to the small red lice which congregate in the cracks and crevices of walls and perches.

#### DEBILITY.

For some unaccountable reason a fowl will sometimes mope about the run and be less active than usual, a paleness will come over its comb and face, in place of the former red hue denoting health and vigour, and in slang parlance it may be said to be decidedly "below par." If neglected the bird will quickly lose flesh and soon be reduced to a skeleton. In many cases debility is caused by overshowing, a sufficient time not being allowed to elapse between each show for the bird to recover from the excitement and knocking about, to which exhibition fowls are necessarily subjected when journeying to or from a show. Cock birds, however, seem to be oftener affected by this complaint than hens, usually brought on with them, by too much gallantry in the breeding pen, in permitting their mates to eat most of the food that is given, and often eating next to nothing themselves; or where two male birds occupy the same run, one may obtain mastery over the other, and literally starve it to death by continually driving it away at feeding times.

TREATMENT.—As soon as a bird is noticed to be drooping and inactive, it should be shut away from the other fowls for a few days and be fed on nourishing food.

Hot bread and milk is excellent, and if a valuable bird, a raw egg may be given to it daily with the best results. If it refuses to eat, the bread and milk should be made into large pills (the size of the little finger to the second joint) adding barley meal, and these should be pushed down its throat. Tonic pills should be administered, or the bird should have given to it, twice daily, a teaspoonful of Quinine and Iron Tonic, as prepared by any chemist. Parrish's Chemical Food is also an excellent "pick me up," but is not perhaps so quickly effective in bracing up an enervated system as the former. It is a splendid formula, however, and may be given with advantage to young chickens in their water, in the proportions of one teaspoonful to three of water. One tea-spoonful of Parrish's Food contains one grain of phosphate of iron, two and a half grains of phosphate of lime, about one-sixth of a grain of phosphate of potash and one-eighth of a grain of phosphate of soda.

Tonic pills, in the form of a paste, are more easily given, but are not perhaps so quickly effective. The following is an excellent prescription:—

### TONIC PASTE.

1 oz. Balsam of copaiba.

½ oz. Liquorice powder.

½ oz. Cayenne pepper.

30 Grains of sulphate of iron.

30 Grains of sulphate of copper.

1 lb. of Aniseed.

One tablespoonful of flour and glycerine to make paste. A pill, the size of a hazel nut, should be given night and morning.

### SCALY LEGS.

To remove the unsightly scaliness which frequently attacks the legs of fowls, the legs should be soaked daily in hot water, and be scrubbed with a hard brush, at the same time using plenty of soap. After each washing, well rub in sulphur ointment, which is made by mixing together lard and flowers of sulphur. A few such dressings will speedily effect a cure of this affection, the cause of which may generally be traced to the birds being kept in wet and dirty runs.

# CHICKEN POX, OR WARTS (A CHICKEN DISEASE).

This disease attacks chickens when from two to three months old. It is known as "chicken pox" in South Africa (where it is a great scourge), and as "warts" in Australia. In its symptoms it somewhat resembles "canker or ulceration of the comb," to which it is undoubtedly allied, yet it differs considerably from that disease, more particularly in its effects. Although apparently very infectious, it is not of so malignant a type as "canker." Whereas the head of the adult fowl suffering from "canker" is soon a swollen mass of inflammation. the skin of the chicken's head attacked with warts appears, on the contrary, to shrink about the face, and the young bird rapidly loses flesh, and wastes away. The first symptoms to be noticed are generally wart-like growths on the eyelids, which by degrees spread and cover the entire head. I have never seen this affection referred to in any of our English poultry books, yet having had experience of it in my own yards. I know that young chickens are liable to

be attacked by such a disease. Shortly before going to Press with this work, however, an Australian lady sent me a copy of "Mrs. Rawson's Australian Poultry Book," a work specially written for Australian poultry keepers, and here I found this disease described, and at once recognised the symptoms. Mrs. Rawson believes it to be a malady that is peculiar to hot climates, as she is unable to find any mention of it in any of our English poultry books; here, however, she is undoubtedly mistaken. Mrs. Rawson says: -"It comes like a scaly eruption or hard wart, generally about the eyes and nostrils first, and by degrees the whole head is covered, and the chicken goes blind, and dies of starvation. It is wonderfully infectious, seeming to be in the air. I once had three chickens affected and isolated them at once, but in two days I had thirty in the same It is a disease that has baffled dozens of poultry keepers and disheartened a great many, as unless hand-fed, the chickens die off to a certainty. Caustic has been tried. but is hardly safe on account of the eyes. Some use kerosene and castor oil, and I have known others deliberately pick or cut them off when they reach a certain stage. However, no matter what treatment is used, the chickens will require to be fed regularly by hand, as very few are capable of feeding themselves. They will eat well all through the disease, and should be given plenty of green food, with boiled scraps of meat and good meal, every second day. Mix some sulphur in the food; indeed, sulphur is about the only remedy I have found of any use in this disease, which leads me to think it must be a blood disorder. . . . Strange to say, it is only the chickens who are affected. I

have never known a half or a full-grown bird to have it."

In 1893, and again in 1894, this malady broke out amongst my Minorca chickens. A number of Brahma and Cochin chickens, of the same age, were in the same meadow, and running with the Minorca chicks, yet these remained entirely unaffected, from which I was led to infer that chickens of the Mediterranean varieties are more susceptible to the disease than those of the hardier Asiatic breeds. I attributed the cause to the chicks roosting too thickly in their coops in warm weather, and sweating at night, and sustaining a chill to the system on coming in contact with the cold air when let out in the early morning.

TREATMENT.—The affected chicks were at once isolated, and the scabs or warts were dressed daily with paraffin oil, or, in bad cases, with Jeyes' Disinfectant Fluid, afterwards anointing the spot with sweet oil to reduce the strength of the paraffin. The young birds were fed upon nourishing food. After considerable trouble the majority of them were cured by the above treatment. If, however, I am unfortunate enough to receive another visitation of this disease at any future time I shall also adopt Mrs. Rawson's advice, and dose the chicks with sulphur.\*

### EGG EATING.

The habit of egg eating, if once acquired, is most difficult to cure. Some writers advise filling an egg with mustard with the idea that a cure may be effected, as a result of

<sup>\*</sup> A South African poultry fancier writes me with reference to this disease:—"Chicken pox is a fearful scourge in this country, where it assumes a most virulent form. Paraffin has been tried, but the best results are obtained by dressing the spots with a strong solution of Condy's Fluid, or permanganate of potash."

tasting the nauseous compound. This remedy, however, cannot be relied on. A better plan is to place an egg in a conspicuous part of the run, and then carefully watch the birds; by this means the culprit will usually be discovered, for, as a rule, egg eating is the work of one arch-offender. So soon as detected she should be removed from her companions, and if of no special value, be killed out of the way.

### FEATHER EATING.

Feather eating is another pernicious habit, and is again frequently the work of one individual, who should, if possible, be discovered and shut away from the other birds, though detection is more difficult than is the case with egg eating. It generally breaks out amongst fowls which are kept in confinement, and is usually the result of want of

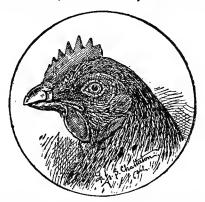


FIG. 16.—VALE'S GAG FOR FEATHER-EATING FOWLS.

occupation, the poultry keeper possessing an extensive range for his fowls being rarely troubled by it. When

poultry are kept in confinement the floor of the sheltered run should be covered with short straw or stable sweepings, under which some corn may be hidden from time to time, and searching for this will afford the birds both occupation and amusement. One authority advises the paring down of the horny edges of the beak, so that the upper and lower mandibles do not close tightly enough for the feather to be successfully pulled out, but allow it to slip between them. This is a good plan, but a still better one is that devised by Mr. W. Vale, of South Norwood, and it is simplicity itself. It is described as follows:—" The most effective method of curing a fowl of feather eating is by passing a piece of wire through the septum of the nose and attaching to it a piece of soft rubber or leather an eighth of an inch thick. rubber or leather rests in the mouth and prevents the fowl closing it firmly enough to pull out a feather. necessary to tether the fowl's legs together, so that it can walk but not lift its legs to scratch at the gag."

### FOWL CHOLERA (ENTERITIS).

Fowl cholera is little known in this country, but an exceedingly infectious and fatal disease, termed "Enteritis," possessing many symptoms common to fowl cholera, and requiring the same methods of treatment, has made its appearance in various parts of the country during the past ten years. My attention was first directed to this disease by an outbreak occurring on a fancy poultry farm in Kent, where from four to five hundred fowls were kept on two acres of land. Two months after its first appearance the number of deaths had been over two hundred; at the end of a year over four hundred birds had

succumbed, and still the epidemic defied the most unremitting efforts to stamp it out. Eventually the owner was obliged to take another holding, and move his remaining stock to fresh ground.

Dr. Klein, the eminent bacteriologist, carefully investigated this disease, and published an account of his researches in The Field. "Till twenty-four to thirty-six hours before death," wrote Dr. Klein, "the fowls appear perfectly right. The first indication of the disease is diarrhœa of thin yellow, frequently fluid, evacuations; the birds are quiet, but are never sleepy, which symptom is so characteristic of fowl cholera. On the next morning, or latest the day following, the animals are found dead. On post-mortem examination the heart contains clotted blood, the liver is enlarged, soft, and brittle; usually the spleen is enlarged to twice its normal size or more, and is soft and flaccid. The serous covering of the intestines, and particularly the mucous membrane lining the cœcal appendages, is highly charged with blood. The cavity of the rectum contains yellow fluid fœcal matter; in the cœcal appendages there is much mucus."

A few years since, and a short time after reading particulars of the above outbreak, a gentleman residing in Berkshire, who kept some 150 fowls, consulted me with reference to a mysterious disease which was daily carrying off numbers of his birds. On visiting his farm I came to the conclusion that the symptoms were identical with those described by Dr. Klein. I advised that all the apparently healthy birds which remained should be removed to shedding in a meadow, a small piece of ground round the

shed being fenced with wire netting 6ft. in height. This was at once done, and each morning afterwards the fowls were carefully looked through when let out of the house. Those discovered to be ailing were immediately destroyed, and the droppings searched out and covered with lime Several birds fell during the following ten days, but the epidemic was effectually and quickly stamped out in this way. The fowl houses at the farm were thoroughly disinfected, and the ground was allowed a rest until the following breeding season.

### DISEASES OF THE COMB.

(SEE ALSO "ULCERATION OF THE COME," PAGES 128-129.)

There are several minor complaints which attack the combs of fowls, more particularly those of the large combed breeds. The combs of the cock birds will sometimes chap, that is to say, the skin cracks and a sore place develops, which is generally followed by a scab. This continues to spread, gradually eating its way into the substance of the comb. Again, the comb will be sometimes covered with a scaly eruption, or it will be attacked by a fungus-like growth which will eat into the flesh. Another form of comb affection is known as white comb. This comes in small white patches having the appearance of flour, and quickly spreads over the entire surface of the comb. These are not serious complaints of themselves, and the health of the fowl rarely suffers in consequence, but they require timely treatment.

TREATMENT.—All these different affections may be speedily cured by three or four dressings with paraffin and sweet oil, as directed for "Ulceration of the Comb," page 129.

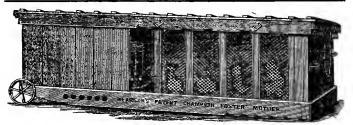


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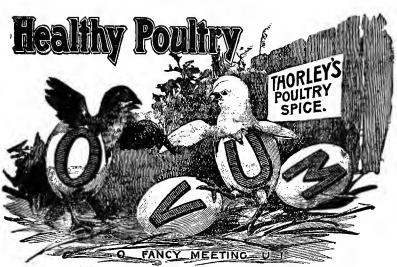
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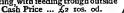
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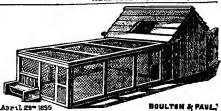


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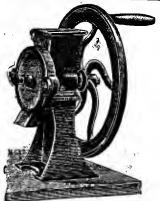


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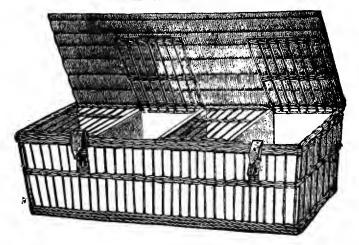
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Many birds are annually exported to different parts of the world. The greatest care is exercised in selecting and shipping birds, which invariably reach their destination in first class condition, and give complete satisfaction. Many prizes have been awarded at South African and Continental shows to birds exported by Mr. Webster.

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In addition to sending choice fowls to different parts of Europe and North America during the past eight years, six consignments have been exported to Mr. J. H. Alexander, Woodstock, Cape Town; five to J. H. May, Esq., Johannesburg, South Smart, Esq., Durban, Natal, S. Africa; two to Douglas Africa; two to Robert Clarke, Esq., Assam, India; three to Captain Dahlstron, Helsingfors, Finland; two to George Bergman, Esq., Helsingfors, Finland; three to F. A. Boutcher, Esq., Durban, Natal; two to Dr. Juan, Rosario, Argentine Republic; and three to Monsieur C. Blussé, Dordrecht, Holland. The undermentioned breeds are kept:—

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BUFF ORPINGTONS.
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PARTRIDGE COCHINS.
PLYMOUTH ROCKS.
HOUDANS.
LANGSHANS.
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PARTRIDGE COCHIN BANTAMS.

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LIGHT BRAHMA BAN TAMS.

SILVER SEBRIGHT BANTAMS.

BLACK RED GAME BANTAMS.

Mr. Webster has had the honour of supplying Her Majesty the Queen with Prize Fowls from his Yards.

### A VISIT TO THE HILLSIDE POULTRY YARDS.

Reprinted from "Poultry," March 24th, 1899.

There are poultry yards which are famous for the excellence of their inmates without being either expensive or elaborate in construction. Our aim in promoting the poultry fancy has always been to encourage its general development—i.e., the breeding of poultry by all classes who have room to do so, on a scale adapted to the special requirements of each person, rather than the hasty starting of great and magnificent establishments. These are very useful in their way as models, but the best and most successful poultry yards have grown out of small beginnings, and such is the history of the establishment we are about to describe.

Taking advantage of a fine day during the early part of the present month, we journeyed to Maidenhead to inspect the prize poultry farm of Mr. R. W. Webster. Arriving at the G. W. R. station, a sharp spin along the Bath road soon brought us to Hillside Farm, pleasantly situated near Littlewick Green. Just as we alighted at our destination the poultryman was about to go the rounds with the afternoon corn, so we fell in and accompanied him. To describe each pen that we saw, or its inmates, would occupy more space than can well be spared at this

season, therefore we will generalise.

The poultry farm was originally started by Mr. Webster in the year 1883, but so great has been the demand for birds and eggs from time to time, that he was induced to considerably enlarge his yards, until now the hobby has assumed the features of a large business, and the stock at the present time comprises over five hundred birds. Mr. Webster lives about a mile-and-a-half distant from his farm, driving backwards and forwards each day, but every morning finds him amongst the birds or busy with his correspondence. In connection with Hillside is a grass farm of over a hundred acres, so that the birds are not restricted as regards range. Since the yards have been established neither labour nor money has been spared in the endeavour to make them second to none in the kingdom. That expense has not been considered in the past in obtaining first-class specimens to infuse fresh blood into the Hillside strains, is proved by the fact that Mr. Webster frequently pays from £5 to £10 for a stock bird, and he has given as much as £20, and even £30, for some of the most perfect specimens. It will doubtless be fresh in the minds of many Minorca exhibitors that during the latter part of 1889 the highest price mentioned was given for the Crystal Palace Minorca cup cockerel.

Of the breeds that make up the pens this season first favourites are undoubtedly black Minorcas, of which there are scores, possessing marvellously big lobes, with the soundest of faces, and colour that would make a beetle envious. Many of the birds are descendants of the celebrated cock, winner as a cockerel of the 15-guinea challenge cup, silver cup, and silver medal at the Crystal Palace Show in 1889. Amongst the male birds this season there are the Exeter 15-guinea challenge cup cock (Minorca Club Show), the 1897 challenge cup cock (London Minorca Club Show), the Lambeth and Canning Town challenge cup cockerel

(London Minorca Club Show), which our artist has so ably portrayed on the front page this week; whilst the females include winners at the London Minorca Club Show, the Crystal Palace, and other exhibitions.

Amongst the light Brahmas are many magnificent specimens which have won numberless prizes. We noticed one splendid cock—the Birmingham and Mid-England winner-which we were informed was practically sold to be exhibited at the forthcoming poultry show to be held at St. Petersburg in May. The strain of light Brahmas is one of the oldest in the Fancy. In 1896 Mr. Webster purchased Mr. W. F. Potter's entire yard, amongst which were winners at the Palace, Birmingham, and other well-known shows. The "Potter" strain had then a pedigree of five-and-twenty years, and had for a long time heen in much request amongst light Brahma breeders. The extraordinary purity of colonr of the hirds is perhaps their strongest point, but the hackles are also well defined. There is also a prizewinning strain of dark Brahmas, some of which have found their way into the yards of her Majesty the Queen. Partridge Cochins are of the celebrated G. H. Wood strain, and the foundation of the present stock was purchased when Mr. Wood retired from the poultry fancy in 1892, the strain dating back so far as 1879. when a cockerel won the cup at the Palace Show. Mr. Webster bred the cap Palace partridge cockerel in 1891, showing in conjunction with Mr. G. H. Wood, and the cup Palace cock in 1895; also the third prize cock at the last Birmingham Show.

Barred Plymouth Rocks, Houdans, Langshans, Indian Game, and Aylesbury ducks all find favour, and are in the breeding pens. Bantams, too, are to the fore, and some of the best partridge Pekin and light Brahma bantams living (notably the first Liverpool winning partridge Pekin cock, the best out this season) are descended from Mr. Webster's strains. Black Rosecombs, buff Pekins, and silver Sehrights are also kept. Most of the birds are reared within view of the farmhonse, but there are a couple of pens of Minorcas situated in a sheltered part near a good wood. Not only in poultry does Mr. Webster excel, but he also breeds Jersey cattle and Berkshire pigs. The foods used are wheat, oats and small maize, barleymeal, cockled-seed meal, and others. Potatoes, too, come in the hill of fare, and four bushels are used each week, which are grown on the farm. The chickens are reared largely on Spratt's poultry meal and Liverine.

Mr. Webster possesses a large and valued connection amongst foreign poultry fanciers; numerous birds are annually exported to all parts of the world, and many prizes have been won with fowls imported from the Hillside yards by colonial and continental fanciers. Mr. Webster also makes a speciality of selling eggs for hatching, and he claims that eggs purchased from him during the past ten years have produced more winners than have eggs supplied by any other fancier in Great Britain; certainly the large number of letters in his possession, showing remarkable results as regards quality of birds hatched from his eggs goes far towards justifying him in making this assertion. In connection with this we may here remark that the second prize light Brahma hen at the Crystal Palace Show in 1897 (in the opinion of many light Brahma fanciers the best hen ever seen), which was subsequently sold for the record price of £25, was hatched from eggs obtained from the Hillside yards.—W. W.B.

### LARGE SHIPMENT OF POULTRY TO SOUTH AFRICA.

Reprinted from the "Maidenhead Advertiser" of Wednesday, December 28th, 1898.

On Friday, the 16th inst., Mr. R. W. Webster, of Hillside, exported to Natal, South Africa, per the Castle Liner s.s. "Garth Castle," a large consignment of prize-bred fowls, numbering in all 112 birds, and representing no less than 30 breeds of choice poultry. Chancing to visit Mr. Webster's establishment the day before they left, we had the pleasure and privilege of inspecting this splendid collection of birds, and of testifying to the admirable arrangements which had been made for their comfort during the voyage of 28 days; and it has occurred to us that a short description of what we saw might not prove uninteresting to many of our readers. Conducted by Mr. Webster, we first entered a large, roomy shed, and here, penned in tiers of pens, or wire cages, were the majority of the birds which were going abroad. Each pen contained a cockerel and two pullets of their respective breed. There were buffcoloured fowls (just now so much in fashion), blue fowls, black, white and mottled fowls, birds of bright-coloured plumage and others of more sombre tints; but our attention was perhaps more particularly attracted by representative specimens of the aristocratic modern or exhibition Game—quaint-looking Houdans, their heads adorned with large globular crests, the symmetrical Cochins, and the diminutive bantams -which latter appeared to be an exact counterpart of their larger confrères. It should here be said that specimens of the breeds which are not kept at the Hillside farm had been obtained from the yards of some of the leading fanciers of those breeds, the selection doing credit to Mr. Webster's judgment. The tout ensemble constituted a veritable poultry show of itself, and presented to the eyesight a remarkable and striking sense of variety and wealth of colour. It is unnecessary to particularise as to the merits of individual birds; suffice it to say that the consignment, as a whole, without doubt forms one of the finest collections of prize-bred fowls that has ever left this country. Leaving the birds-not without reluctance—we were next taken to view the coops in which they were to travel to their new and distant home. As may be readily imagined, it is no small undertaking to provide suitable accommodation for 112 live fowls to travel a journey of a month's duration, and to ensure, so far as possible, their reaching their destination, not only alive, but without suffering in health or even condition of plumage, from the enforced confinement. But Mr. Webster is an expert in such During the past seven or eight years he has exported some hundreds of choice fowls, until at the present time he possesses a large and valued connection amongst poultry-fanciers in all parts of the world. Even by the same steamer ("Garth Castle") a smaller consignment of Aylesbury ducks is being sent to another fancier in Natal, and we are further informed that the preceding week six birds were exported to

India, and six to Holland; indeed, it would appear that scarcely a week passes without either fowls or eggs being despatched to some part of the globe. But to return to the shipment in question, and to describe the coops or crates. Five crates, each holding 18 birds, were to take 90 fowls, and the sixth and somewhat larger would hold the remaining 22, of which number 12, being bantams, would not require so much room. The crates were divided into compartments or coops, each one to contain a male and two females, and measuring—inside dimensions—2ft. 2in. by 2ft., and 2ft. 3in. high, rather close quarters, it would seem, but we are assured it is sufficient, and it must be remembered that economy of space is essential on board ship. The crates are boarded on all sides except the front, which is partly sparred. Each coop is provided with a cup for water, and the floor is covered with a good thick layer of peat-moss litter, which forms a comfortable bed, and at the same time acts as an effective deodoriser. Every compartment, too, possesses a door with double fastenings, and as an extra precaution an inner moveable spar is placed, so that when the door is opened the birds are still prevented from getting out and possibly flying overboard. All the crates are strongly and well made, but are not elaborate, nor is it necessary that they should be. They are constructed at the farm, and the importer is only charged the actual cost-price of construction. On the top of each crate the address of the consignee is printed in large letters. With reference to the feeding of this big family during the voyage we learn that 20 bushels of corn are already on board ship. They were to leave for the East India Dock Basin early the following morning, by special G.W.R. van, and should have reached the vessel the same after-Here they were to be met by Mr. Webster's agent, who would see them safely on board, and finally give instructions to the attendant whose duty it was to look after them. The carrying through of such an order as this must have involved a very considerable amount of labour: yet it is evident that no item which could conduce to the comfort of the birds had been overlooked, but, on the contrary, every want had been anticipated.



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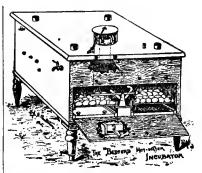
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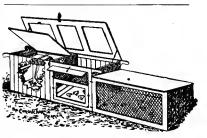
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